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November 24, 2007

BY E-FILE

The Honorable Sue L. Robinson
U.S. District Court for the
District of Delaware
U.S. Courthouse
844 King Street
Wilmington, DE 19801

Re: Callaway Golf Company v. Acushnet Company
D. Del., C.A. No. 06-91-SLR

Dear Judge Robinson:

During the pretrial conference on November 20, 2007, the parties discussed whether the hybrid golf balls Acushnet made could be admitted into evidence notwithstanding the Court's exclusion of Dr. MacKnight's testimony. The Court noted that it would examine the expert report of Acushnet's invalidity expert, Dr. Statz, to determine whether Dr. Statz had adequately explained the relevance of the golf balls and the testing of those balls. We write to assist the Court in its examination of Dr. Statz's report (D.I. 217, Ex. 23) (attached as Exhibit 1 for the Court's convenience).

In his report, Dr. Statz discusses in detail each prior art combination on which he relies for his opinion that the patents-in-suit are invalid. For each such combination, he explains: a) why someone of ordinary skill in the art would be motivated to combine the references; b) that the properties of the resulting golf ball would satisfy the limitations of the asserted claims; and c) that the combination would involve no more than using materials in a predictable way for predictable results.

In explaining why the resulting golf balls would invalidate the claims using an "on the ball" claim construction, Dr. Statz cites to the hybrid ball testing evidence provided in Dr. MacKnight's report. It is worth noting that the balls discussed by Dr. MacKnight were the ones on which Dr. Statz relies for his invalidity opinions. As Dr. Statz provides the evidentiary predicate for why the prior art combinations are motivated by the prior art and obvious in light of that art, and explains the testing of the prior art balls (which were made according to those

combinations) and its relevance, Acushnet submits that there should be no reason to exclude the prior art ball testing evidence.

For example, Dr. Statz discusses the Proudfit / Wu combination as it relates to claim 1 of the '293 patent. Dr. Statz first describes in full the salient features of the Proudfit reference, and concludes that the Proudfit reference teaches all of the elements of claim 1 except the use of polyurethane as a cover material. D.I. 217, Ex. 23 ¶ 98 at 29-31. Specifically, Dr. Statz identifies the specific materials and dimensions of the preferred embodiment of the Proudfit patent (a core of 1.500 inches, an inner cover layer of 0.037 inches, and an outer cover layer of 0.0525 inches). *Id.* ¶ 97 at 29.

Dr. Statz then explains why a person of ordinary skill would be motivated in 1995 to replace the outer cover of the Proudfit ball with polyurethane:

> Although Proudfit does not expressly describe the use of polyurethane as an outer cover material, it would have been well known to a person of ordinary skill in the art in 1995 that polyurethane was a suitable and desirable replacement cover material for balata-based cover materials. The advantages of polyurethane over balata include: (a) improved processability; (b) improved durability compared to balata; (c) cost-effectiveness compared to balata; and (d) good click and feel.

Id. ¶ 99 at 31. With respect to Wu specifically, Dr. Statz cites a key passage of Wu, where Wu explains that polyurethane is a good replacement for Surlyn or balata covers. *Id.* ¶ 104 at 32. Dr. Statz opines that Wu thus teaches to use the polyurethane (such as that set forth in Example 1 of the Wu patent) as a replacement for Surlyn or balata covers. *Id.* ¶ 105 at 32.

Thus, Dr. Statz explains why it would be obvious to a person of ordinary skill in the art to replace the outer cover of the Proudfit ball with the polyurethane disclosed in Table 1 of Wu. He then cites to the prior art ball testing to show that a ball that was made in exactly that way had a Shore D hardness (on the ball) of well under 64. *Id.* ¶ 106 at 32-33. In particular, the hybrid ball identified as BALL_8 in Dr. MacKnight's declaration was prepared exactly according to the combination described by Dr. Statz: it had the core described by Proudfit (same materials and diameter), the inner cover layer of Proudfit (same materials and thickness), and the outer cover of Wu Table 1 (same material, of the thickness specified by Proudfit). MacKnight Decl. ¶ 24. This ball had a Shore D hardness of 56.8 measured on the ball. D.I. 217, Ex. 23 ¶ 106.

Dr. Statz also provides the factual basis for the conclusion that a person of ordinary skill in the art would reasonably expect that a polyurethane cover would have a Shore D hardness of less than 64 (on the ball) when applied to the Proudfit or Nesbitt ball construction. Dr. Statz explains in many places that a person of ordinary skill in the art would be motivated to use soft polyurethanes in place of other soft cover materials, such as soft ionomers or balata, because polyurethanes are soft yet durable. *Id.* ¶¶ 37-40, at 8-9; ¶ 80 at 22-23; ¶ 83 at 23; ¶¶ 90-91 at 26; ¶¶ 99-101 at 31; ¶ 105 at 32; ¶¶110-111 at 33-34. Dr. Statz also relies on data sheets to show the relative softness of polyurethane as a material measured "off the ball." *See, e.g., id.* ¶

77 at 21 (Estane 58133, the polyurethane disclosed in Molitor '637, is a "soft polyurethane material that has a Shore D hardness of 55, as measured off the ball").

Obviously, soft materials remain relatively soft when placed on a golf ball, as the evidence will not surprisingly show. While the hardness measured "on the ball" may change from the plaque hardness, soft materials stay soft and hard materials, like some Surlyns, stay hard. Thus, Dr. Statz's report demonstrates that a person of ordinary skill in the art would have a reasonable expectation that using the soft polyurethanes disclosed in the Wu and Molitor patents on the ball constructions of the Nesbitt and Proudfit patents would yield a soft outer cover.

In short, those who made the prior art balls did no more than follow the prior art combinations that Dr. Statz opines would have been motivated in the art. Dr. Statz thus establishes the reasons why the patents-in-suit are invalidated by the prior art references, and he opines as to the relevance of these prior art golf balls.

On the other hand, Dr. MacKnight's contribution to Acushnet's invalidity case was not to opine as to how to combine the prior art references and why those references render the patents invalid (which was done by Dr. Statz), but instead to verify that Acushnet constructed the prior art golf balls in a satisfactory manner, and to verify that the independent testing lab, PTLI, was properly equipped to perform Shore D hardness testing. It is the underlying test results, rather than Dr. MacKnight's report, that Dr. Statz relies on.

Since Dr. Statz explains the relevance of the prior art testing evidence, he should be allowed to opine on the relevance and significance of the prior art testing vis-à-vis the claims of the patents-in-suit. Moreover, as counsel for Acushnet stated at the pretrial conference and in its opposition brief to Callaway's MacKnight *Daubert* motion, Mr. Dalton can testify regarding the creation of the prior art balls and Mr. Galipeau can testify about the testing of the balls. Messrs. Dalton and Galipeau are on Acushnet's witness list, and both were deposed by Callaway regarding the creation and testing of the balls. Thus, Acushnet submits that the evidence of prior art ball testing at issue should be admitted.

* * *

In addition to the issue above, we also take this opportunity to point out two factual discrepancies between the undisputed record on summary judgment and the order denying Acushnet's motion for summary judgment of invalidity.

First, in denying Acushnet's motion for summary judgment of anticipation of claims 1 and 2 of the '130 patent, the Court identified "inconsistencies" in the 1993 and 2007 declarations of Proudfit. D.I. 347 at 18. We respectfully submit that there are no such inconsistencies, and indeed Callaway identified none in briefing or argument on summary judgment.

Specifically, in his 1993 declaration, which is part of the public prosecution history of the Proudfit patent, Mr. Proudfit stated the following with respect to the outer cover

layer of the Wilson Ultra Tour Balata ball: "The balata layer of the Ultra Tour Balata ball also included polybutadiene and the other ingredients which are listed in Table 7 of the application in addition to synthetic balata." D.I. 216, Ex. 47 at ¶ 14. In his 2007 declaration, Mr. Proudfit (a disinterested witness who has no relationship with either party) stated: "The outer cover layer of the Wilson Ultra Tour Balata golf ball on sale in 1993 was the composition set forth in Table 7 of the '187 patent." D.I. 238, Ex. 5 at ¶ 6. These statements are completely consistent with each other.

It appears that the Court may have based its ruling on a lack of clarity of whether synthetic balata is one of the materials listed in Table 7. D.I. 347 at 18 n.7. The Proudfit '187 patent makes clear that synthetic balata is one of the materials listed in Table 7. That table includes the ingredients "Trans PolyIsoprene (TP-301)" and Polybutadiene. The Proudfit '187 patent explains that Trans PolyIsoprene TP-301 ***is*** synthetic balata: "Synthetic balata is trans polyisoprene and is commonly sold under the designation TP-301 available from Kuraray Isoprene Company Ltd." Proudfit '187 at col. 1:23-25. Thus, there is no inconsistency between Mr. Proudfit's 1993 declaration and his 2007 declaration.

The Court also based its ruling on the fact that Mr. Proudfit had not yet been deposed as of the summary judgment briefing. D.I. 347 at 18. Mr. Proudfit has now been deposed by Callaway, and in his deposition, Mr. Proudfit confirmed all of the statements in his 2007 declaration. In particular, Mr. Proudfit confirmed that the inner cover layer of the Wilson Ultra Tour Balata was the blend of ionomers of Table 6 of his '187 patent, and the outer cover layer was the composition of Table 7 of his '187 patent:

Q. So Table 7 describes the outer cover composition of the outer cover of the Wilson Ultra Tour Balata?
A. Yes, sir.
Q. All right. You're familiar with the composition of the inner cover of the Wilson Ultra Tour Balata?
A. Yes, sir.
Q. What was that composition?
A. That composition was in Table 6, which was Surlyn 8940 at 75 percent and Surlyn 9910 at 25 percent.
Q. Do you have any doubt as to the fact that that was the composition of the inner cover of the Wilson Ultra Tour Balata?
A. No, sir.

Proudfit Tr. at 51:9-24 (attached as Exhibit 2 hereto). In addition, Acushnet listed Mr. Proudfit in its supplemental initial disclosures on August 30, 2007. Before then, Acushnet did not know that Callaway would contest the fact that the cover layers of the Wilson Ultra Tour Balata and the Proudfit '187 patent were the same. Indeed, the 1993 Declaration of Mr. Proudfit confirms that the outer cover of the Wilson Ultra Tour Balata was the same as that described in Table 7 of the '187 patent (D.I. 216, Ex. 47 at ¶ 14), and it was known in the art that the inner cover layer of the Wilson Ultra Tour Balata was a blend of low-acid Sodium and Zinc ionomers, as described

in Table 6 of the '187 patent (D.I. 217, Ex. 23 ¶¶ 200-201, at 59; D.I. 217, Ex. 11 at AC00072945).

At this point, there is no genuine dispute that the cover layers of the Wilson Ultra Tour Balata and the Proudfit '187 patent are identical, and Callaway has identified no evidence showing otherwise.

Second, Acushnet notes that the Court's order denying Acushnet's motion for summary judgment of invalidity states that the patents-in-suit claim priority to Mr. Sullivan's 1993 application. D.I. 347 at 2 n.1. In fact, the 1993 application does not provide written description support for the claims of the patents-in-suit. Instead, the parties have agreed in the Pretrial Order that the effective priority date of the '293, '156, and '873 patents is November 9, 1995, and the effective priority date of the '130 patent is October 13, 1995. D.I. 334, Ex. 1, at 3 (Statement of Admitted Facts). To Acushnet's knowledge, Callaway has never argued in this case that the patents-in-suit are entitled to a priority date of 1993.

We appreciate the opportunity to call this information to the Court's attention. If we can be of further assistance in any way, we stand ready to do so.

Respectfully submitted,

/s/ Richard L. Horwitz

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EXHIBIT 1 – PART 1

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY,	)	
	)	
Plaintiff,	)	C.A. No. 06-91 (SLR)
v.	)	
	)	
ACUSHNET COMPANY,	)	
	)	
Defendant.	)	

EXPERT REPORT OF DR. ROBERT J. STATZ

TABLE OF CONTENTS

I. INTRODUCTION

1. My name is Dr. Robert J. Statz. I submit this report to describe my opinions regarding the invalidity of U.S. Patent Nos. 6,210,293 ("the '293 patent"), 6,503,156 ("the '156 patent"), 6,506,130 ("the '130 patent") and 6,595,873 ("the '873 patent"). Specifically, my report includes the following: (I) an explanation of my qualifications to testify as an expert in this matter; (II) a brief statement of my opinions with regard to the issues of invalidity; (III) background information regarding the development of cover materials for golf balls; (IV) a statement of the legal standards applied in my analysis; (V) a summary of the key prior art I rely on in my analysis; (VI) my analysis of the disputed claim construction issues; (VII) my analysis that each claim of the patents-in-suit is invalid because it is anticipated and/or rendered obvious by the prior art; (VIII) my analysis of the secondary factors to be considered with regard to obviousness; and (IX) a conclusion.

A. Qualifications

2. I am a consultant in the field of polymers and polymer modification. I received my B.S. in physical and organic chemistry from American University in 1963, my M.S. from American University in 1964, and my Ph.D. from the University of Maryland in 1968 where my thesis work was on polypropylene. From 1968 until 2001 I was employed by E.I. duPont & de Nemours Co. ("duPont") in Wilmington, Delaware.

3. I was engaged in research on engineering polymers at duPont's Experimental Station from 1968 to 1971.

4. From 1971 to 1974 I was employed by duPont at their research facilities at Sabine River works where I engaged in research on ionomers. Ionomers are ionic polymers used, among other places, in making golf balls.

5. From 1974 to 1979 I was engaged in research on catalysts to produce methyl methacrylate and on polymers to produce hot melt adhesives and modify PVC.

6. From 1979 until I retired I was engaged in research to produce new ethylene copolymers for new markets. This research resulted in 35 U.S. patents on which I am a named inventor, and millions of dollars/year of sales for duPont.

7. In 1979, we started a research product to make ionomers specifically designed for the golf ball industry. Prior to this time, golf ball companies typically used ionomers that had been developed for other industries, such as the packaging industry.

8. From 1979 through my retirement from duPont, I was actively involved in the development of ionomers and other materials for use in golf ball construction, including cover layers of golf balls.

9. During the time that I worked on materials for golf balls, I worked closely with researchers and scientists at virtually all of the major golf ball companies, including Wilson, Dunlop, Ram, Spalding, Titleist and Bridgestone, in their development of golf ball materials, including materials for use in covers of golf balls. My work led to at least 11 patents on which I am a named inventor specifically related to the design of golf balls and golf ball materials.

10. My experience over the 20 plus years in which I worked on golf ball material design has given me broad expertise in the area of golf ball construction, and in particular with respect to golf ball cover and core materials. This experience includes the following:

a. In the early 1980s, my research led to the development of lithium ionomers for use as a hard, stiff cover material in the golf ball industry. This was the first new commercial ionomer produced in 25 years, and it was made exclusively for use in the golf ball industry.

b. After the development of lithium ionomers, also in the 1980s, my research team undertook a new research project, working with Wilson, to design a cover material that would perform like balata. This led to a family of polymers that we called Very Low Modulus Ionomers that, on a wound ball, had the click and feel of balata. While these ionomers had the click and feel of balata, they did not have the durability of Surlyns.

c. In the early 1980s, my team worked closely with Spalding to develop a replacement for Spalding's cover material that consisted of a blend of urethane and ionomer. During the course of this work, we did research to develop ionomers that would give similar or better properties than the polyurethane/ionomer blends, and better properties than polyurethane alone. To this end, we developed very soft ionomers, such as Surlyn 1856 (renamed 8320). We then produced blends of these very soft ionomers with stiffer, standard ionomers. Again, these were designed for use as golf ball cover materials, and Spalding used these blends as a replacement for their blend of polyurethane and ionomer cover materials.

d. In the mid 1980s, my team developed blends of lithium ionomers and Very Low Modulus Ionomers for use as golf ball covers.

e. In the mid to late 1980s, my team began work on the development of high acid (>16%) ionomers, which produced golf ball cover materials that were harder and stiffer than low acid standard ionomers. This work was begun with Dunlop, and the cover materials that we developed were (and still are) used in distance golf balls.

f. In the early 1990s, my team developed ionomers that were easier to process into covers because they flowed better than standard ionomers, without degrading the important golf ball properties desired by golf ball designers, such as abrasion resistance, coefficient of restitution (COR), etc.

g. In the early 1990s, I also worked with others at duPont to develop more resilient Hytrel materials for use as an inner golf ball cover. I understand that this cover material was used in commercial Titleist balls.

h. In addition in the 1990s, I helped develop an injection molding resin which can replace thermoset cores and /or give one-piece golf balls which will meet or exceed the distances obtained from crosslinked polybutadiene.

i. Throughout the 1990s we continued to research and develop new cover materials and core materials.

11. My resume is attached as Exhibit A.

B. Prior Testimony/ Compensation

12. I have not testified in any matters during the last four years.

13. I am being compensated at $150/hour for the time it takes me to study and prepare opinions, and to testify in this matter.

C. Information Considered

14. In addition to my general knowledge gained as a result of my experience in the field of polymer chemistry and designing golf ball cover and core materials, I have reviewed and considered, among other things, the patents-in-suit and their prosecution histories, the reexamination requests on the patents-in-suit filed by Acushnet, the office actions in those reexaminations, Callaway's response thereto, and Acushnet's comments thereto. I have also reviewed the prior art references discussed in the invalidity analyses provided below, and documents cited herein. Appendix B to this report sets forth the full list of documents I have reviewed, in whole or part.

II. STATEMENT OF OPINIONS

15. I understand that Callaway has not asserted claims 3 and 6 of the '293 patent, claim 3 of the '130 patent, and claims 2, 4, 5, and 6 of the '873 patent against Acushnet in this case. Thus, I have been asked to confine my analysis to the remaining claims of the patents-in-suit (claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the '130 patent, and claims 1 and 3 of the '873 patent). I reserve the right to provide opinions about the validity of additional claims should the need arise.

16. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent are

anticipated by U.S. Patent No. 4,431,193 to Dennis R. Nesbitt ("Nesbitt"), issued Feb. 14, 1984, under 35 U.S.C. § 102(b).

17. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Nesbitt in view of U.S. Patent No. 4,274,637 to Robert P. Molitor ("Molitor '637"), issued Jun. 23, 1981.

18. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Nesbitt in view of U.S. Patent No. 5,334,673 to Shenshen Wu ("Wu"), issued Aug. 2, 1994.

19. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Nesbitt in view of U.S. Patent No. 4,674,751 to Robert P. Molitor ("Molitor '751"), issued Jun. 23, 1987.

20. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over U.S. Patent No. 5,314,187 to James R. Proudfit ("Proudfit"), issued May 24, 1994, in view of Molitor '637.

21. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Proudfit in view of Wu.

22. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over Proudfit in view of Molitor '751.

23. It is my opinion that claims 1-3 of the '130 patent are anticipated by Proudfit.

24. It is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent would

have been obvious under 35 U.S.C. §103(a) over the Wilson Ultra Tour Balata golf ball in view of Wu.

25. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over the Wilson Ultra Tour Balata golf ball in view of Molitor '751.

26. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over the Wilson Ultra Tour Balata golf ball in view of the Titleist Professional golf ball.

27. It is my opinion that claims 1-2 and 4-5 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-5 of the 130 patent, and claims 1 and 3 of the '873 patent would have been obvious under 35 U.S.C. §103(a) over the Wilson Ultra Tour Balata golf ball in view of the Titleist Professional 2P golf ball.

28. It is my opinion that claims 1-3 of the '130 patent are anticipated by the Wilson Ultra Tour Balata golf ball.

29. A limitation-by-limitation analysis of the prior art set forth above as applied to the claims of the patents-in-suit is provided below.

III. BACKGROUND

30. The following is an overview of the development of synthetic polymers as materials of construction for golf balls. This overview presents what I believe is a general understanding of the use of synthetic materials in their construction.

31. Until the 1970s golf balls were widely produced from natural rubber threads wound under tension on a solid or liquid center and covered with a natural rubber resin (balata).

32. In the late 1960s, duPont's Plastics Department introduced Surlyn ionomers to the golf ball industry for use as cover materials. These cover materials for golf balls were synthetic

materials that were noted for their high clarity, toughness, and abrasion resistance (See, e.g, U.S. Patent No. 3,264,272). Patents on the use of these materials in golf balls began to appear in the late 1960s (See, e.g, U.S. Patent No. 3,454,280). These materials produced almost indestructible golf balls and made the game of golf friendlier to the average player. As an example, the ionomer coated golf balls would not cut or lump when mis-hit. In the early 1970s, Ram Golf in Pontotoc, Mississippi introduced a wound golf ball with the balata cover replaced by Surlyn ionomer.

33. In the late 1970s, a project was undertaken at duPont to develop still further ionomeric materials specifically designed to meet the needs of the golf industry. The major need, cited by golf industry, was a material that would have the click, feel and spin of Balata. Surlyn 1855 (later 9020) was known and had been unsuccessfully evaluated by the industry (for example, in the Nesbitt 193 patent). A project was undertaken to produce a softer, lower hardness material (See, e.g., Statz 4,844,814) that would function more like balata. The resulting family of polymers found acceptance in the golf industry as covers materials and as replacements for balata, standard ionomers, and urethane/ionomer blends (such as described in the Molitor '751 patent). Two-piece balls employing these softer ionomers as cover materials were successfully played by professional golfers.

34. While these soft, low modulus materials did function well in two-piece golf balls there was always a desire to achieve the click and feel and spin of balata, and the distance of a Surlyn covered golf-ball. One effort to achieve this goal was through the use of multi- layered balls such as Strata (described in the patents-in-suit), and using the newer, softer ionomers as the outer cover layer, rather than the older ionomers described in the Nesbitt 193 patent.

35. DuPont's efforts to develop, soft flexible ionomers that had improved resilience continued through the years (See, e.g., U.S. Patent Nos. 5,691,418 and 6,953,820). Hence there has been an evolution of synthetic resins for use as cover materials in the golf ball industry.

36. In my experience working with golf ball designers through the years, golf ball designers routinely examine and experiment with available cover materials that have their

desired mechanical properties. For instance, as described above, when Surlyns that had similar mechanical properties to balata became available, golf ball designers began using such Surlyns as a replacement for balata. Similarly, as described below, when polyurethanes emerged as a potential golf ball cover material, golf ball designers began in the ordinary course to experiment with and use those materials as alternative cover materials to Surlyns. Thus, in my opinion, golf ball designers (especially by 1995) had a tendency to define mechanical properties they desired in their cover layers, and choose cover layer materials from materials (soft versus hard ionomers, low-acid versus high acid ionomers, ionomers versus polyurethane, etc.) that provide those mechanical properties.

37. In the ongoing search for the best cover materials for golf balls, urethanes have often been evaluated. Polyurethanes have been know for decades to be one of the few materials that have the abrasion resistance, impact durability and processability that would allow them to function on golf balls. Moreover the chemistry of urethanes allows urethane producers to tailor the hardness, abrasion resistance and resilience to fit the end-use requirements.

38. It has been known since at least the 1960s to use polyurethane as a golf ball cover material. Several papers and patents dating back several decades discuss the use of polyurethanes as golf ball cover materials, including for example, U.S. Patent No. 3,989,568 (1976 to Isaac); U.S. Patent No. 4,123,061 (1978 to Dusbiber); U.S. Patent No. 4,442,282 (1984 to Kolycheck); and the Molitor '637, Molitor '751, and Wu patents. The inventor of the patents-in-suit, Mr. Sullivan, stated in an article that "polyurethanes have been used in golf ball covers for decades...." M. Sullivan, "History and Construction of Non-Wound Golf Balls," Science and Golf III; Proceedings of the 1998 World Scientific Congress of Golf at 409, 413 (1999).

39. In addition, it was known that such polyurethane covers could be used with all kinds of golf ball cores. For instance, the '568 patent to Isaac states that the polyurethane cover could be used on "any core which is suitable for use in a golf ball." Col. 3:55-57. The '282 patent to Kolycheck states that polyurethane covers can be used with wound or solid golf balls.

Col. 4:34-42. The Wu patent also states that its polyurethane cover can be used on "either wound or solid" cores." Wu, col. 5:22-25.

40. Polyurethane covers had also been used on commercial golf balls dating back to at least the Spalding Executive, which was sold in the late 1960s. Nesbitt Tr. at 22:21-24. Polyurethane covers were actually extremely popular by 1995. At that time, the most popular ball on the professional PGA Tour was the Titleist Professional, which was a wound ball with a polyurethane cover. In addition, commercial golf balls existed by 1995 that were solid construction with a polyurethane cover, such as the Professional 2P and others (which are listed on the USGA conforming ball list for 1995).

IV. LEGAL STANDARDS

41. I understand that patent claims are presumed valid and that the burden of proving facts showing the patent claims to be invalid rests on the party asserting invalidity. I also understand that a patent is provided a presumption of validity in part because of the expertise of patent examiners and the presumption that they have done their jobs properly. I further understand in this case that a patent examiner on reexamination of the patent claims that I will address in my opinions has recently determined that the patent claims should be rejected as unpatentable over prior art.

A. Anticipation and Obviousness

42. I understand that a patent claim is anticipated by prior art under 35 U.S.C. § 102(b) when a single reference describes all of the claim limitations. I also understand that the determination of whether a recited claim limitation is satisfied is a two-step analysis: (1) determining the meaning and scope of the claims and (2) comparing the properly construed claims to the prior art. I also understand that the first step is commonly known as claim construction or claim interpretation.

43. In performing my analysis of the proper interpretation to be given to the claims of the patents-in-suit, I understand that I should look first to the "intrinsic evidence" for their

meaning, starting with the language of the claims themselves. As an initial matter, claim terms should be given their ordinary meaning to person of ordinary skill in the art. I may consult the patent specification, drawings and the prosecution history to determine the context for the claim language and to determine if the patentee deviated from the plain and ordinary meaning of the claim terms. In addition, I am informed that if a claim term has clear and plain meaning on its face, I am not to infer any special meaning for that claim absent a clear and unambiguous special meaning contained in the patent.

44. I understand that when a prior art reference makes specific reference to an aspect of a second prior art reference, the second reference is to be treated as part of the first reference. I understand that if one prior art reference incorporates by reference a second prior art in such a way, the incorporated material is to be considered part of the first prior art reference for purposes of an anticipation analysis.

45. I understand that, if the claimed invention is not anticipated by the prior art, the claim may still be invalid under 35 U.S.C. § 103(a) because the difference between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. I understand that the most relevant facts bearing on whether a patented invention is obvious are: (1) the scope and content of the prior art; (2) the differences between the prior art and the claim; and (3) the level of ordinary skill in the art. I also understand that, if the obviousness determination is not apparent from these factors, "secondary considerations" might also be utilized in an analysis of the obviousness of the invention.

46. In determining whether claims would have been obvious to a person of ordinary skill in the art, and are therefore invalid, I understand that I should not apply any rigid test or formula. Rather, I should use the common sense of an ordinary artisan at the time to determine whether the claimed invention is truly innovative, or merely a combination of known elements to achieve predictable results. In general, the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

When a work is available in one field, design goals and other market forces can prompt variations of it, either in the same field or in another. If a person of ordinary skill in the art can implement a predictable variation of a known work, and would see the benefit of doing so, then a patent on that idea is likely to be obvious. Moreover, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person's skill.

47. I understand that the secondary factors that may bear on the question of obviousness or non-obviousness include the commercial success of the invention, a long felt but unsolved need for the invention, the failure of others to invent the subject matter claimed, an unexpected improved result due to the invention, and commercial acquiescence to the validity of the patent. My understanding, however, is that such secondary considerations are used to resolve doubt as to a patentable invention, not to inject or create such doubt. I also understand that in order for such objective evidence of non-obviousness to be relevant to a determination of obviousness or non-obviousness, the patentee must show that there is a "nexus" or close connection between the evidence and the claimed invention. Alternatively stated, the objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support. For example, if a patentee argues that a product's commercial success shows the non-obviousness of a patent, the patentee must show a nexus between the product's success and the claims of the patent at issue.

48. I have been informed that I should assume that the effective filing date of the '293 patent, '156 patent, and '873 patent in this case is November 9, 1995, and that the effective filing data of the'130 patent was made is October 13, 1995. I have been informed that I should assume those dates to be the times the inventions were made.

49. In my opinion, in 1995, a person of ordinary skill in the art of the invention of the patents-in-suit had a number of years of experience in golf ball design and/or golf ball cover design. A person of ordinary skill in the art would have a general understanding of the types of

golf ball materials and constructions that had been used in the golf ball industry up to that point in time. A person of ordinary skill in the art would be aware of prior art golf ball construction patents. This is based on my review of the patents-in-suit and my knowledge of those who were working in the field at the time.

V. SUMMARY OF PRIMARY PRIOR ART

50. The following patents are the primary prior art patent references that I used in my analysis of the validity of the claims of the patents-in-suit:

a. Nesbitt

b. Proudfit

c. Molitor '637

d. Wu

e. Molitor '751

51. At trial, I anticipate that I will explain to the jury what is described in each of these patents, including a description of the figures, tables, written description, and claims of these patents.

52. In addition, I relied on the following golf balls that were available in the market by 1994:

a. Wilson Ultra Tour Balata 100

b. Titleist Professional

c. Titleist Professional 2P

53. At trial, I anticipate that I will explain to the jury the physical properties of these golf balls, including the dimensions and materials of the various components of these golf balls.

VI. CONSTRUCTION OF DISPUTED CLAIM TERMS

54. I understand that the determination of validity or invalidity of patent claims starts with interpreting the claims of the patents. I understand that the Court will ultimately decide as a matter of law how the claims should be interpreted. Thus, if the Court construes any claim terms

differently than how I have interpreted them for purposes of this analysis, I may need to supplement my opinions expressed herein.

55. I understand that the parties dispute how the "Shore D" limitations of the patents-in-suit should be interpreted. For example, claim 1 of the '293 patent recites, "an inner cover layer having a Shore D hardness of 60 or more," and "an outer cover layer having a Shore D hardness of 64 or less." '293 patent, col. 23:51-58. Each claim of the patents-in-suit has similar limitations.

56. I understand that Callaway contends that the Shore D limitations of cover layers refers to a measurement taken on the curved surface of the cover layer (i.e., "on the ball"), whereas Acushnet contends that the Shore D limitations of cover layers refer to measurements taken on a plaque of material that conforms to the ASTM D-2240 standard (i.e., "off the ball").

57. In my opinion the "Shore D" limitations as they are used in the patents-in-suit refer to a Shore D measurement of a plaque of material that conforms to the ASTM D-2240 standard.

58. The language of the claims supports my opinion. In particular, when the patents-in-suit refer to material properties of the "inner cover layer" or "outer cover layer," they are clearly referring to properties of the materials that make up the cover layer. For example, claim 7 of the '293 patent recites "an outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi." '293 patent, col. 24:60-62. Other claims of the patents-in-suit have similar claim limitations. There is no way to measure flexural modulus of a material as it sits on the surface of the ball. The only way to measure flexural modulus of a material is on a material plaque (or a "flex bar"). *See* ASTM D-790. Thus, when the claims refer to a cover layer "having a modulus," they are either referring to a measurement of a plaque of material, or they make no sense and are indefinite. Thus, when the claims refer to a material property of a "cover material," they refer to the material property as measured off the ball.

59. Other patents in the same family as the patents-in-suit also demonstrate that when Mr. Sullivan or Spalding wanted to claim the Shore D hardness as measured on the ball, it

explicitly so stated in the claims and description. For example, U.S. Patent No. 6,213,894 ("the '894 patent") is in the same family as the patents-in-suit, and lists Mr. Sullivan as the inventor. Claim 1 of the '894 patent recites "a thermoplastic inner cover layer formed over the core, the inner cover layer having a Shore D hardness of at least 60 ***as measured on the curved surface thereof. . . .***" The specification of the '894 patent uses similar language. For example, the specification states, "The invention in a preferred form is a golf ball, comprising: a core, a thermoplastic inner cover layer formed over the core, the inner cover layer having a Shore D hardness of at least 60 ***as measured on the surface thereof***, and an outer cover layer formed over the inner cover layer, the outer cover layer having a Shore D hardness of no more than 53 ***as measured on the surface thereof*** . . . ." '894 patent, col. 3:45-48. In contrast, nothing in the claims or specification of the patents-in-suit explicitly calls for a Shore D measurement taken on the ball.

60. The specification of the patents-in-suit also supports my opinion regarding the proper construction of the "Shore D" limitations. When the specification refers to Shore D hardness measurements, it repeatedly refers to measurements taken in accordance with the ASTM D-2240 standard. *See, e.g.,* '293 patent, col. 16:49-50 ("Shore hardness was measured in accordance with ASTM test 2240."). ASTM D-2240 requires measuring the Shore D hardness of a material using a plaque of material at least 0.25 inches thick. ASTM D-2240 § 6.1, at 389. The ASTM D-2240 standard does not contemplate the use of a Shore durometer on thin golf ball covers as they are formed on the curved surface of the ball.

61. I understand that Callaway identifies Sample Nos. 9 and 10 of Table 7 of the patents-in-suit as instances in which the patents-in-suit refer to the Shore D hardness as measured on the ball. I disagree that one of ordinary skill in the art would understand these to be examples of using measurements of Shore D taken on the ball. Sample Nos. 9 and 10 use an outer cover material that is a blend of Iotek 959 and 960. *See, e.g.,* '293 patent, Table 7, cols. 19-20. Iotek 959 and 960 are described in the patents-in-suit as having Shore D hardness properties of 66 and 57 respectively. '293 patent, col. 21:13. These Shore D measurements are clearly plaque

measurements, taken "off the ball," and they appear to have been taken from a datasheet listing the properties of those Iotek ionomers. Sample Nos. 9 and 10 in Table 7 list the Shore D hardness of the 959/960 outer cover as 73, but there is nothing that explicitly tells the reader whether that hardness measurement was measured on the ball or off the ball.

62. I would expect that the "off the ball" Shore D measurement of the Iotek 959/960 blend would be between the "off the ball" Shore D measurements of the individual ionomers (i.e., between 57 and 66). Thus, it would not seem internally consistent if the Shore D measurements for the individual ionomers (57 and 66) and the Shore D measurements for the blend (73) were both accurate and taken off the ball. Thus, in my opinion, either there is an error in measurements or reporting the measurements, or the "Shore D" measurement in Table 7 refers to something other than an "off the ball" measurement.

63. Callaway assumes that the reason Samples 9 and 10 of Table 7 report a Shore D that is not between 57 and 66 is because the measurement is taken on the ball in Table 7. I disagree with that assumption. The Shore D measurements of the outer cover layers in Table 7 do not vary depending on the materials underneath the outer cover layer. For instance, the Shore D measurements reported in Table 7 for Sample Nos. 9 and 10 are both 73, despite the fact that Sample 9 had no inner cover layer, and Sample 10 had an inner cover layer also composed of Iotek 959/960. Similarly, the Shore D measurements reported in Table 7 for Sample Nos. 11, 12, and 13 are all 63, despite the fact that Sample 11 has no inner cover layer at all and Sample Nos. 12 and 13 have different inner cover layers. The same can be said of samples 15, 16, and 17. If these Shore D measurements were really taken on the ball, as Callaway contends, I would expect the Shore D measurements of the outer cover layer to vary somewhat depending on the material underneath the cover layer.

64. Thus, it is not clear what the Shore D measurements in Table 7 refer to, but the measurements in the table seem inconsistent with the conclusion that they are "on the ball measurements." Thus, it is my opinion that a person of ordinary skill in the art would not understand the Shore D measurements to be "on the ball" measurements.

VII. INVALIDITY ANALYSIS

A. Claim 1 of the '293 patent

65. Claim 1 of the '293 patent recites:

> 1. A golf ball comprising:
>
> (a) a core;
>
> (b) an inner cover layer having a Shore D hardness of 60 or more molded on said core, said inner cover layer having a thickness of 0.100 to 0.010 inches, said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and
>
> (c) an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer, said outer cover layer having a thickness of 0.010 to 0.070 inches, and said outer cover layer comprising a relatively soft polyurethane material.

1. Claim 1 of the '293 patent is anticipated by Nesbitt

66. Nesbitt discloses a golf ball that has a solid core, a hard, high modulus inner cover layer, and a soft, low modulus outer cover layer. Specifically, Nesbitt discloses a solid core formed of "resilient polymeric material or rubber-like material in the shape of a sphere." Nesbitt, col. 2:31-34; Figs. 1-2. Nesbitt does not disclose the composition of his core, but suggests an example in which the core has a .770 coefficient of restitution. Nesbitt, col. 3:26-30.

67. One example described in Nesbitt has an inner cover layer of Surlyn 1605 and an outer cover layer of Surlyn 1855. Surlyn 1605 has been redesignated as Surlyn 8940, and Surlyn 1855 has been redesignated as Surlyn 9020. Surlyn 1605 (8940) has an inherent Shore D

hardness (measured off the ball) of 65 or 66, and Surlyn 1855 (9020) has an inherent Shore D hardness (measured off the ball) of 55. *See* Surlyn Product Information Sheet.

68. Nesbitt describes that the inner cover layer has a thickness of between 0.020 inches and 0.070 inches. Nesbitt, col. 3:19-22; Fig. 2. Nesbitt describes that the outer cover layer has a thickness of between 0.020 and 0.100 inches. Nesbitt, col. 3:22-25. Nesbitt describes an example in which the combination of the core and the inner cover layer (sometimes called the mantle or intermediate ball) has a diameter of 1.565 inches. Nesbitt, col. 3:26-30.

69. While Nesbitt describes the use of Surlyns 1605 and 1855 as the inner and outer cover layers of his ball, Nesbitt makes clear that the use of Surlyn ionomer resins generally, and the use of Surlyns 1605 and 1855 specifically, are merely examples of his invention and are not limiting. Nesbitt, col. 2:33-49; col. 3:19-25 (describing the use of materials "such as" the two Surlyns).

70. Nesbitt explicitly directs the reader to substitute materials described in the Molitor '637 patent for the cover materials described in the Nesbitt patent. In particular, Nesbitt states:

> The inner, intermediate, or first layer or ply 14 and the outer cover, second layer or ply 16 or either of the layers may be cellular when formed of a foamed natural or synthetic polymeric material. Polymeric materials are preferably such as ionomer resins which are foamable. Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16 for the golf ball of this invention.

Nesbitt, col. 3:51-61. One of ordinary skill in the art would understand this paragraph to direct the reader to look to the Molitor '637 patent for "foamable compositions" that may be employed as one or both cover layer materials in the golf ball construction described by Nesbitt.

71. The Molitor '637 patent was issued on June 23, 1981, and describes a number of golf ball cover layer materials. In particular, Molitor '637 teaches the use of polymeric materials to be used for cover layers of golf balls, including, among others, blends of ionomers and polyurethane.

72. In particular, Examples 16 through 19 of Molitor '637 describes the use of polyurethane as a cover material. Molitor '637, col. 18:31-19:10. Examples 16-17 describe a cover material formed of "Thermoplastic Polyurethane," which was sold as Estane 58133. Molitor '637, col. 18:31-59. Examples 18-19 describe "casting a liquid thermoset polyurethane foam," which was sold as Reyn-o-SOL RU 6709, as a cover material. Molitor '637, col. 18:60-19:10.

73. The thermoplastic and thermoset polyurethanes taught by Molitor '637 are "foamable compositions" that may be used as the outer cover layer of the golf ball described in Nesbitt. In particular, polyurethane is a "foamable" material (i.e., it can be foamed, using a blowing agent or something similar). Indeed, Molitor '637 itself describes the use of a "liquid thermoset polyurethane ***foam***." Molitor '637, col. 18:63-66 (emphasis added). Accordingly, Nesbitt's incorporation by reference of the "foamable compositions" of Molitor '637 would have directed a person of ordinary skill in the art to use the polyurethanes of Molitor '637 as the outer cover material of the golf ball construction described by Nesbitt. Indeed, as set forth in the background section of this report, it was extremely well known in 1995 to use polyurethanes as the outer cover material for golf balls.

74. Molitor '637 also discloses a blend of ionomers as cover layer material. In particular, Examples 1-7 of Molitor '637 use a blend that includes Surlyn 1605 (now 8940) and Surlyn 1557 (now 9650), and other additives. Molitor '637, col. 1:54-16:34. Surlyn 1557 has been redesignated as Surlyn 9650, which has a Shore D hardness of 63, measured off the ball. Both Surlyn 1605 (8940) and 1557 (9650) are ionomers with a low (<16%) acid content. The ionomer blend cover material described by Molitor '637 is also a "foamable composition" that may be used as the inner cover layer of the golf ball construction disclosed by Nesbitt. Since the inner cover layer described in Nesbitt and the blended ionomer material disclosed in Molitor '637 have similar mechanical properties, a person of ordinary skill in the art would have readily understood to use the blended ionomer material of Molitor 6317 as the inner cover layer. Accordingly, Nesbitt's incorporation by reference of the "foamable compositions" of Molitor

'637 would have directed a person of ordinary skill in the art to use the blend of ionomers described in Examples 1-7 of Molitor '637 as the inner cover layer of the golf ball described by Nesbitt.

75. I understand from Callaway's Response to the Office Action in the reexamination proceedings that Callaway argues that Molitor's cover materials could only be used with a cover layer thickness of 0.060 inches of greater, and that therefore the cover materials disclosed in Molitor '637 could not be used in the golf ball construction of Nesbitt to anticipate claim 1 of the '293 patent. *See, e.g.*, Response to Office Action in the Reexamination of the '293 Patent, April 30, 2007, at 17. Callaway refers to Molitor '637 at col. 5:1-13. I disagree with Callaway's argument. First, Molitor '637 states that in Mr. Molitor's testing, "functional foaming cannot be achieved, ***when the cover is injection molded onto the center***, if the cover thickness decreases below 0.060"." Molitor '637, col. 5:5-7 (emphasis added). This statement does not speak to the ability to compression mold a foamed cover layer at a thickness below 0.060 inches. It was well known in the art in 1995 that cover layers of golf balls could be compression molded at much thinner than 0.060 inches. Second, even if a an outer cover was made on Nesbitt's construction using cover layer thicknesses of 0.060 inches for the inner and/or outer cover layers, that thickness would fall within the range claimed in claim 1 of the '293 patent (0.020 to 0.070 inches for the outer cover layer and 0.010 to 0.100 inches for the inner cover layer).

76. Accordingly, a person of ordinary skill in the art would understand that the disclosure of Nesbitt, incorporating by reference the foamable compositions of Molitor '637, discloses a golf ball with a solid core, a hard inner cover layer (which may be a single ionomer or a blend of ionomers), and a soft polyurethane outer cover.

77. The chart below sets forth the specific disclosures in Nesbitt, incorporating by reference Molitor '637, that are set forth in claim 1 of the '293 patent.

Claim 1 of '293 patent	**Nesbitt (incorporating by reference Molitor '637)**

Claim 1 of '293 patent	**Nesbitt (incorporating by reference Molitor '637)**
1. A golf ball comprising:	"The disclosure embraces a golf ball and method of making same…." Nesbitt, Abstract, Figs. 1, 2.
a core;	"Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core 12 formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." Nesbitt, col. 2:31-34; *see also* col. 3:26-30; Figs. 1, 2.
an inner cover layer having	Nesbitt describes a ball construction with an inner cover layer. "Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material…." Nesbitt, col. 2:34-37.
a Shore D hardness of 60 or more molded on said core,	Nesbitt describes the use of Surlyn 1605 as the inner cover layer: "inner cover 14 of molded hard, high flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. duPont de Nemours." Nesbitt, col. 2:36-38. Surlyn 1605 has been redesignated as 8940. *See* Surlyn Product Information; '293 patent, col. 2:54-55. Surlyn 1605 (8940) has a Shore D harness of 65 as measured off the ball. *See* Surlyn Product Information. Nesbitt incorporates by reference the materials of Molitor '637 for use in the inner cover layer. Nesbitt, col. 3:51-60. Molitor '637 teaches in Examples 1-7 the use of cover materials including a blend of Surlyn 1605 (8940) and Surlyn 1557 (9650). Molitor '637, col. 14:54-16:34. Surlyn 1605 (8940) has a Shore D hardness of 65 as measured off the ball. *See* Surlyn Product Information. Surlyn 1557 (9650) has a Shore D hardness of 63 as measured off the ball. *See id.* The blend of these two ionomers described in Molitor '637 would inherently have a Shore D hardness around between 63 and 65, as measured off the ball.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." Nesbitt, col. 3:19-23. A person of ordinary skill in the art would recognize that the ionomer blend disclosed in Molitor '637 could easily be compression or injection molded to any thickness within the range described by Nesbitt.

Claim 1 of '293 patent	**Nesbitt (incorporating by reference Molitor '637)**
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	The ionomer blend described by Molitor '637 comprises two low acid (<16% acid). Both Surlyn 1605 (8940) and 1557 (9650) contain no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Since the inner cover layer described in Nesbitt and the blended ionomer material disclosed in Molitor '637 have similar mechanical properties, a person of ordinary skill in the art would have readily understood to use the blended ionomer material of Molitor 6317 as the inner cover layer.
an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer,	"An outer layer, ply, lamination or cover 16 … is then remolded onto the inner play or layer 14…." Nesbitt, col. 2:43-47. The outer cover disclosed in Nesbitt is Surlyn 1855 (now 9020), and has a Shore D hardness of 55, as measured off the ball. *See* Surlyn Product Information. Nesbitt incorporates by reference the polyurethane cover materials disclosed by Molitor '637 for use as the outer cover layer in the Nesbitt golf ball construction. Nesbitt, col. 3:51-60. Molitor '637 teaches the use of Estane 58133 in examples 16 and 17. Molitor '637, col. 18:31-59. Estane is a soft polyurethane material that has a Shore D hardness of 55, as measured off the ball. *See* Estane 58133 Product Specification Sheet.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." Nesbitt, col. 3:22-25. "The outer layer of the soft resin is of a thickness of 0.0575 inches." Nesbitt, col. 2:50-52. A person of ordinary skill in the art would recognize that the polyurethane cover materials disclosed in Molitor '637 could easily be molded or cast to any thickness within the range described by Nesbitt.
said outer cover layer comprising a relatively soft polyurethane material.	Nesbitt incorporates by reference the polyurethane cover materials disclosed by Molitor '637 for use as the outer cover layer in the Nesbitt golf ball construction. Nesbitt, col. 3:51-60. Estane 58133 is a relatively soft polyurethane material whose Shore D hardness is 55, as measured off the ball. *See* Estane 58133 Product Specification Sheet.

78. While it is my opinion that the Shore D hardness claim limitations refer to measurements taken off the ball, Nesbitt would still anticipate claim 1 of the '293 patent even if

the Shore D hardness claim limitations referred to "on the ball" measurements. Balls were made at the direction of Dr. William MacKnight that had the core described by Sullivan as the Nesbitt core, an inner cover layer made of the blend of ionomers described by Molitor '637, and an outer cover layer made of the Estane 58133 polyurethane material described by Molitor '637. The average Shore D hardness of the outer layer of these balls, as measured on the ball, was 61.0, which is less than 64. MacKnight Decl. ¶ 33. In addition, the "on the ball" measurement of Shore D hardness of the inner cover layer would be even higher than the "off the ball" measurement. This is confirmed by Mr. Nesbitt himself during his deposition, who testified that when he measured the hardness of the inner cover layer material on the ball it was higher than when measured off the ball. Nesbitt Tr. at 244:6—244:17. Thus, even under a claim construction that requires the Shore D measurements to be taken on the ball, claim 1 is anticipated by Nesbitt, incorporating by reference Molitor '637.

2. Claim 1 of the '293 patent is obvious over Nesbitt in view of Molitor '637

79. Even if Nesbitt's reference to Molitor '637 is not seen legally as an "incorporation by reference," claim 1 of the '293 patent would have been obvious to one of ordinary skill in the art over Nesbitt in view of Molitor '637. A person of ordinary skill in the art would have been motivated to combine the Molitor '637 patent with the golf ball disclosed in Nesbitt. First, Nesbitt explicitly directs the reader to the cover materials in Molitor '637. Second, it was very well known in 1995 to use polyurethane as a golf ball cover, on both wound balls and solid 2-piece balls. For example, the most popular golf ball on the PGA Tour in 1995 was the Titleist Professional, which used polyurethane as a cover material.

80. Moreover, since the polyurethane cover material disclosed by Molitor '637 had very similar mechanical properties to the ionomer outer cover material disclosed in Nesbitt, a person of ordinary skill in the art would have been motivated to substitute the polyurethane of Molitor '637 for the ionomer outer cover layer of Nesbitt. In particular, both Surlyn 1855 (9020) and Estane 58133 have a Shore D of 55, and have flexural modulus properties of 25,000 and

14,000 psi, respectively. *See* Estane 58133 Product Specification Sheet; Surlyn Product Information. As set forth in the background section of this report, it was extremely well known in 1995 to use polyurethanes as the outer cover material for golf balls. In addition, golf ball designers had a tendency to substitute cover layer materials that had similar mechanical properties. Thus, the combination of the polyurethane cover disclosed in Molitor '637 with the Nesbitt construction would constitute simply combining known elements (the construction of Nesbitt and the cover material of Molitor '637) in a predictable way for predictable results.

81. The combination of the golf ball construction described by Nesbitt and the cover materials of Molitor '637 would render claim 1 of the '293 patent obvious for the same reasons that Nesbitt anticipates claim 1 of the '293 patent, which are set forth above.

3. Claim 1 of the '293 patent is obvious over Nesbitt in view of Wu

82. Wu teaches:

> The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit.
>
> It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and "feel" of balata.

Wu, col. 1:36-46.

83. Wu specifically teaches a polyurethane material that can be used as a cover material to replace Surlyn or balata covers. Example 1 of Wu sets forth an example of such a polyurethane material. Wu col. 7:10-28. I understand that this polyurethane was used on the Titleist Professional golf ball, which was the most popular golf ball on the PGA Tour in 1995. Dalton PTO Declaration ¶¶ 3-4.

84. The polyurethane disclosed as Example 1 by Wu has a flexural modulus of about 23,000 psi. Dalton PTO Decl. ¶ 7. In addition Dr. MacKnight created balls that had the core of Nesbitt, inner cover material of the ionomer blend disclosed in Molitor '637 and incorporated by reference by Nesbitt, and an outer cover layer of the Wu Example 1 material. The average Shore D hardness of the outer cover of those balls was 55.6 as measured on the ball, which is less than 64 as required by the claims. MacKnight Decl. ¶ 33. The Shore D hardness of the polyurethane of Example 1 of Wu would be even lower as measured off the ball. Thus, the polyurethane disclosed in Wu would satisfy the claimed limitations.

85. I understand that the Board of Patent Appeals and Interferences has already determined in relation to the examination of another Sullivan patent that it would be obvious to use the polyurethane cover taught by Wu on the golf ball construction disclosed by Nesbitt. In particular, the BPAI's decision in *Ex parte Sullivan*, related to U.S. Application No. 09/873,594, states:

> In applying the test for obviousness we conclude that the teachings of Wu clearly would have made it obvious at the time the invention was made to a person of ordinary skill in the art to have modified Nesbitt's golf ball by using polyurethane as the outer cover material to achieve the expected benefits therefrom taught by Wu (i.e., to have the "click" and "feel" of balata; improved shear resistance and cut resistance; durability; and resiliency). Thus, it would have been obvious to one skilled in the art too have modified Nesbitt's three-piece golf ball having a spherical core, an inner layer of type 1605 Surlyn® and an outer layer of type 1855 Surlyn® by replacing the type 1855 Surlyn® in the outer layer with polyurethane as suggested and taught by Wu.

Ex Parte Sullivan, 2004-0242, at 11 (footnote omitted).

86. The reasoning of the BPAI in *Ex parte Sullivan* applies equally well to the patents-in-suit. There are very few limitations that are claimed in the patents-in-suit that were not present in the claim rejected by the BPAI. These limitations include: a) Shore D hardness of the inner cover layer that is greater than 60; b) Shore D hardness of the outer cover layer that is less than 64; c) flexural modulus of the inner cover layer that is between about 15,000 psi and about 70,000 psi; d) flexural modulus of the outer cover layer that is between about 1,000 psi and

30,000 psi; e) a dimpled outer cover; and f) and an overall diameter of 1.680 inches or more. All of these limitations are inherently disclosed by Nesbitt and Wu. Specifically, the inner cover layer of Nesbitt is described as Surlyn 1605 (8940), whose Shore D is 65, as measured off the ball, and would be even higher measured on the ball, and whose flexural modulus is 51,000 psi. *See* Surlyn Product Information. The outer cover of Nesbitt is described as Surlyn 1855 (now 9020), whose Shore D is 55, as measured off the ball, and whose flexural modulus is about 14,000. *See id.* The flexural modulus of the Wu Example 1 polyurethane is about 23,000 psi. Dalton PTO Decl. ¶ 7. Nesbitt also describes a dimpled outer cover. Nesbitt, col. 2:43-50. . Furthermore, Nesbitt states that the minimum diameter for a golf ball set by the USGA is 1.680 inches. *See* Nesbit, col. 2:50-53. Thus, the BPAI's reasoning in deciding that Nesbitt can be combined with Wu applies equally to the patents-in-suit.

87. I understand that Callaway may argue that the claims of the patents-in-suit are not obvious over Nesbitt in view of Wu because these references do not teach a person of ordinary skill in the art how to adhere a polyurethane outer cover layer to an ionomer inner cover layer. I note that there is nothing in the claims of the patents-in-suit that require good adhesion between the cover layers. There is nothing in the specification of the patents-in-suit that teaches someone how to adhere the outer cover layer to the inner cover layer. Thus, the fact that these prior art references do not teach how to achieve such adhesion does not affect my analysis of the validity of the claims over the prior art.

88. For the reasons set forth above, the combination of the polyurethane cover disclosed in Wu with the Nesbitt construction would constitute simply combining known elements (the construction of Nesbitt and the cover material of Wu) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent would be obvious over Nesbitt in view of Wu.

4. Claim 1 of the '293 patent is obvious over Nesbitt in view of Molitor '751

89. Molitor '751 teaches cover materials for use as outer cover layers of golf balls, including "two-piece golf balls." Specifically, Molitor '751 states:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a cover having a shore C hardness less than 85, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the invention is made of a composition comprising a blend of (1) a thermoplastic urethane having a shore A hardness less than 95 and (2) an ionomer having a shore D hardness greater than 55.

Molitor '751, col. 2:33-49.

90. Molitor explicitly states that the covers disclosed in Molitor '751 can be used on the Nesbitt ball construction. Specifically, Molitor '751 states:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, but also includes balls having a solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and other balls having non-wound cores.

Molitor '751, col. 2:7-12. Molitor '751 states that using a soft polyurethane on balls such as the Nesbitt ball construction have "playability properties as good or better than balata-covered wound balls," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot." Molitor '751, col. 2:61-68.

91. Given the description of the advantages of the cover materials in Molitor '751, and its suggestion to use the cover materials on the Nesbitt ball, a person of ordinary skill in the art would have been motivated to substitute the cover materials disclosed in Molitor '751 for the outer cover material disclosed in Nesbitt.

92. While Molitor '751 expresses the preferred hardness of the disclosed cover layer in terms of a Shore C measurement, this can be roughly correlated to a Shore D measurement. Molitor '751 discloses a most preferred cover hardness of 72 to 76 on the Shore C scale. A

cover with a Shore C hardness of 72 to 76 will certainly have a Shore D hardness of well below 64. Several sources confirm this.

a. The patents-in-suit explicitly refer to a translation between Shore C and Shore D. For example, the '293 patent states "Preferably, the inner layer or ply incudes [sic] a blend of low acid ionomers and has a Shore D hardness of 60 or greater and the outer cover layer comprised of polyurethane and has a **Shore D hardness of about 45 (i.e., Shore C hardness of about 65).**" '293 patent, col. 3:49-54 (emphasis added).

b. For example, U.S. Patent. No. 6,905,648, assigned to Callaway, shows that a Shore C hardness of 73 correlates to a Shore D hardness of 47. U.S. Patent No. 6,905,648, Table 19.

c. Spalding's arguments to the patent office during the prosecution of the '873 patent also confirm this correlation. During the prosecution of the '873 patent, Spalding used a comparison chart from Rex Gauge Company to convert between Shore C and Shore D measurements to overcome a rejection. U.S. Application Serial No. 09/776,278, Response to Office Action, March 14, 2002. That same comparison chart shows that a Shore C hardness between 72 and 76 would translate to a Shore D hardness of less than 60, which would certainly be less than 64.

d. DuPont also provides a chart for the purpose of translating Shore hardness measurements. This chart shows that Shore C measurements of 77 or less translate to a Shore D of 58 or less, which is well under 64. This duPont chart was Exhibit O to Acushnet's Comments to Callaway's Response to Office Action in the pending reexaminations of the patents-in-suit.

e. In another patent application, Callaway submitted a declaration of Mark Binette in which Mr. Binette set forth both Shore C and Shore D hardness values. Application Serial No. 08/631,613, Binette Declaration, at 4. Those

values indicated a correlation between Shore C of 75 and Shore D of 49, and between Shore C of 72 and Shore D of 48. Thus, a Shore C measurement between 72 and 76 would be well under 64 on the Shore D scale.

Thus, it is clear that the preferred hardness range that Molitor '751 describes for the outer cover layer falls well under 64 on the Shore D scale.

93. In addition, Dr. MacKnight prepared ball samples having Nesbitt's core, an inner cover layer using the ionomer blend disclosed by Molitor '637 and incorporated by reference into Nesbitt, and an outer cover layer using a polyurethane / ionomer blend similar to the most preferred Example 4 in the Table on Columns 7 and 8 of Molitor '751. The cover material was identical to Example 4, except a slightly harder ionomer than that disclosed in Example 4 was used. Even with the harder ionomer being used, the average outer cover hardness of the sample balls was 49.6 on the Shore D scale. MacKnight Decl. ¶ 33. This measurement is entirely consistent with the rough correlations performed above, and is well under 64, as required by the claims of the patents-in-suit.

94. For the reasons set forth above, the combination of the polyurethane cover disclosed in Molitor '751 with the Nesbitt construction would constitute simply combining known elements (the construction of Nesbitt and the cover material of Molitor '751) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent would be obvious over Nesbitt in view of Molitor '751.

5. Claim 1 of the '293 patent is obvious over Proudfit in view of Molitor '637

95. Proudfit discloses a golf ball with a core, a relatively hard inner cover layer, and a relatively soft outer cover layer. Proudfit, col. 7:21-25; Figs. 1-2. The inner cover layer is described as a 75/25 blend of low acid (<16%) ionomer resins, Surlyn 8940 and Surlyn 9910. Proudfit, col. 8:22-30. The outer cover layer is described as being a "soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17.

96. Proudfit describes that the core can be between about 1.000 to 1.500 inches in diameter. Proudfit, col. 7:35-37. Proudfit describes that the thickness of the inner cover layer can be from about 0.0250 to 0.2875 inches, such that the core plus the inner cover layer (sometimes referred to as the mantle or intermediate ball) has a diameter from about 1.550 to 1.590 inches. Proudfit, col. 7:37-40. Proudfit describes that the thickness of the outer cover layer can be from about 0.0450 to 0.0650 inches, and that the total ball diameter is 1.680 inches. Proudfit, col. 7:40-43.

97. Proudfit describes the preferred dimensions of the ball described as having a core diameter of 1.500 inches, an inner cover layer thickness of 0.037 inches (giving an inner layer diameter of 1.575 inches), and an outer layer thickness of 0.0525 inches. The total preferred diameter of the ball is 1.680 inches. Proudfit, col. 7:43-47.

98. In my opinion, the only element of the claims of the patents-in-suit that is not described explicitly by Proudfit is the use of polyurethane as the outer cover layer. The table below shows the specific disclosures in Proudfit that are set forth in claim 1 of the '293 patent.

Claim 1 of '293 patent	**Proudfit**
1. A golf ball comprising:	"This invention relates to golf balls, and more particularly, to a golf ball having a two-layer cover." Proudfit, col. 1:11-12; Figs. 1-2.
A core;	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; Figs 1-2; *see also* col. 7:51-55.
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; Figs 1-2.
a Shore D hardness of 60 or more molded on said core,	"The composition of the inner cover layer is described in Table 6." Proudfit, col. 8:22-30. Table 6 sets forth a blend of ionomers that consists of 75% Surlyn 8940 and 25% Surlyn 9910. *Id.*

Claim 1 of '293 patent	**Proudfit**
	Surlyn 8940 has a Shore D hardness of 65, as measured off the ball. Surlyn 9910 has a Shore D hardness of 64, as measured off the ball. *See* Surlyn Product Information. Thus, this blend of ionomers would have a Shore D hardness of between 64 and 65, which is greater than 60. The inner cover material is molded, by one of two methods, over the core. Proudfit, col. 8:32-38.
said inner cover layer having a thickness of 0.100 to 0.010 inches,	"The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." Proudfit, col. 7:37-40. "The preferred dimensions are … inner layer thickness of 0.037 inch." Proudfit, col. 7:43-44.
said inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	Surlyn 8940 and Surlyn 9910 are both low acid ionomers containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.
an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer,	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; *see also* Figs 1-2. "… an outer layer of soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17. It was well known to people of ordinary skill in the art in 1995 that balata had a shore D of less than 64. In addition, Proudfit describes a thermoset elastomer based on a blend of polybutadiene and balata like balata as an example of the cover material in Table 7. Proudfit, col. 8:43-55. According to the Declaration of Ed. Hebert, submitted as part of the reexamination proceedings, this material has a Shore D hardness of less than 64. Hebert PTO Decl. ¶ 7.
said outer cover layer having a thickness of 0.010 to 0.070 inches, and	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are … an outer layer thickness of 0.0525 inch…." Proudfit, col. 7:40-46.

Claim 1 of '293 patent	Proudfit
said outer cover layer comprising a relatively soft polyurethane material.	Proudfit discloses the use of a soft outer cover layer material, but not explicitly the use of polyurethane. "… an outer layer of soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17.

99. Although Proudfit does not expressly describe the use of polyurethane as an outer cover material, it would have been well known to a person of ordinary skill in the art in 1995 that polyurethane was a suitable and desirable replacement cover material for balata-based cover materials. The advantages of polyurethane over balata include: (a) improved processability; (b) improved durability compared to balata; (c) cost-effectiveness compared to balata; and (d) good click and feel.

100. In addition, Molitor '637 discloses the use of polyurethane as the outer cover layer of a golf ball. Molitor '637, col. 5:33-41; col. 18, Examples 16-19. As set forth in detail earlier in this report, Molitor '637 discloses using Estane 58133 as an example of such a polyurethane cover. Estane 58133 has a flexural modulus of about 25,000 psi. Estane 58133 Product Specification Sheet. Proudfit's outer cover material has a flexural modulus of between 20,000 to 25,000 psi. Proudfit, col. 6:28-31. Thus, a person of ordinary skill in the art would recognize that Estane 58133 would be a suitable replacement for the outer cover material disclosed in Proudfit.

101. As set forth above during the discussion of Nesbitt anticipating claim 1 of the '293 patent, the polyurethane cover described by Molitor '637 could easily be molded to the preferred outer cover layer dimensions set forth in Proudfit, for example by compression molding.

102. While it is my opinion that the "Shore D" limitations should be construed as to require the measurement of Shore D hardness off the ball, Proudfit in view of Molitor '637 would also render claim 1 of the '293 patent obvious under a claim construction that required measurement on the ball. Dr. MacKnight prepared samples of balls with the core of Proudfit, the

inner cover layer of Proudfit, and an outer cover layer using the Molitor '637 Estane 58133 polyurethane composition. The average Shore D measurement of the outer cover, measured on the ball, was 59.4, which is well under the claimed requirement of 64 Shore D. MacKnight Decl. ¶ 33.

103. For the reasons set forth above, the combination of the polyurethane cover disclosed in Molitor '637 with the Proudfit construction would constitute simply combining known elements (the construction of Proudfit and the cover material of Molitor '637) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent is obvious over Proudfit in view of Molitor '637.

6. Claim 1 of the '293 patent is obvious over Proudfit in view of Wu

104. As discussed above, Wu teaches:

> The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit.
>
> It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and "feel" of balata.

Wu, col. 1:36-46.

105. Wu specifically teaches a polyurethane material that can be used as a cover material to replace Surlyn or balata covers. Example 1 of Wu sets forth an example of such a polyurethane material. Wu col. 7:10-28. I understand that this polyurethane was used on the Titleist Professional golf ball, which was the most popular golf ball on the PGA Tour in 1995. Dalton PTO Declaration ¶¶ 3-4.

106. The polyurethane disclosed as Example 1 by Wu has a flexural modulus of about 23,000 psi. Dalton PTO Decl. ¶ 7. In addition Dr. MacKnight created balls that had the core of

Proudfit, inner cover material of the Proudfit, and an outer cover layer of the Wu Example 1 material. The average Shore D hardness of the outer cover of those balls was 56.8 as measured on the ball, which is less than 64 as required by the claims. MacKnight Decl. ¶ 33. The Shore D hardness of the polyurethane of Example 1 of Wu would be even lower as measured off the ball. Thus, the polyurethane disclosed in Wu would satisfy the claimed limitations.

107. Proudfit's outer cover material has a flexural modulus of between 20,000 to 25,000 psi. Proudfit, col. 6:28-31. Thus, a person of ordinary skill in the art would recognize that the Wu Example 1 polyurethane (flexural modulus of about 23,000 psi) would be a suitable replacement for the outer cover material disclosed in Proudfit.

108. For the reasons set forth above, the combination of the polyurethane cover disclosed in Wu with the Proudfit construction would constitute simply combining known elements (the construction of Proudfit and the cover material of Wu) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent is obvious over Proudfit in view of Wu.

7. Claim 1 of the '293 patent is obvious over Proudfit in view of Molitor '751

109. Molitor '751 teaches cover materials for use as outer cover layers of golf balls, including "two-piece golf balls." Specifically, Molitor '751 states:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a cover having a shore C hardness less than 85, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the invention is made of a composition comprising a blend of (1) a thermoplastic urethane having a shore A hardness less than 95 and (2) an ionomer having a shore D hardness greater than 55.

Molitor '751, col. 2:33-49.

110. Molitor explicitly states that the covers disclosed in Molitor '751 can be used on the a multi-layer cover, solid core construction. Specifically, Molitor '751 states:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, but also includes balls having a solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and other balls having non-wound cores.

Molitor '751, col. 2:7-12. The golf ball construction described by Proudfit is such a construction. Molitor '751 states that using a soft polyurethane on such balls have "playability properties as good or better than balata-covered wound balls," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot." Molitor '751, col. 2:61-68.

111. Given the description of the advantages of the cover materials in Molitor '751, and its suggestion to use the cover materials on multi-layer cover balls like that described in Proudfit, a person of ordinary skill in the art would have been motivated to substitute the cover materials disclosed in Molitor '751 for the outer cover material disclosed in Proudfit.

112. As set forth with respect to the discussion of claim 1 of the '293 compared to Nesbitt in view of Molitor '751, the preferred hardness range that Molitor '751 describes for the outer cover layer (72 to 76 Shore C) falls well under 64 on the Shore D scale.

113. In addition, Dr. MacKnight prepared ball samples having Proudfit's core, Proudfit's inner cover layer, and an outer cover layer using a polyurethane / ionomer blend similar to the most preferred Example 4 in the Table on Columns 7 and 8 of Molitor '751. The cover material was identical to Example 4, except a slightly harder ionomer than that disclosed in Example 4 was used. Even with the harder ionomer being used, the average outer cover hardness of the sample balls was 51.2 on the Shore D scale. MacKnight Decl. ¶ 33. This measurement is well under 64, as required by the claims of the patents-in-suit.

114. For the reasons set forth above, the combination of the polyurethane cover disclosed in Molitor '751 with the Proudfit construction would constitute simply combining known elements (the construction of Proudfit and the cover material of Molitor '751) in a predictable way for predictable results. Thus, it is my opinion that claim 1 of the '293 patent would be obvious over Proudfit in view of Molitor '751.

B. Claim 2 of the '293 patent

115. Claim 2 of the '293 patent recites:

> 2. The golf ball according to claim 1, wherein said golf ball has an overall diameter of 1.680 inches or more.

116. The USGA Rules of Golf define the minimum diameter of a golf ball to be 1.680 inches. See, e.g., Nesbitt, col. 2, ll. 50-54. Since claim 2 of the '293 patent requires only that the golf ball conform with the Rules of Golf, there is nothing inventive about this claim.

1. Nesbitt teaches all elements of Claim 2 of the '293 patent

117. Nonetheless, Nesbitt explicitly discloses that the diameter of the golf ball is at least 1.680 inches. "According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches...." Nesbitt, col. 2:50-52; *see also* col. 3:34-38. Thus, for this reason, and all of the reasons set forth above for claim 1 of the '293 patent, Nesbitt anticipates claim 2 of the '293 patent. Alternatively, claim 2 is obvious over Nesbitt in view of Molitor '637. Claim 2 of the '293 patent is also obvious over a) Nesbitt in view of Wu; and b) Nesbitt in view of Molitor '751.

2. Proudfit teaches all elements of Claim 2 of the '293 patent

118. Proudfit also explicitly discloses that its golf ball has a diameter of 1.680 inches. "The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." Proudfit, col. 7:43-47. For that reason, and those set forth above for claim 1 of the '293 patent, claim 2 of the '293 patent is obvious over a) Proudfit in view of Molitor '637; b) Proudfit in view of Wu; and c) Proudfit in view of Molitor '751.

C. Claim 4 of the '293 patent

119. Claim 4 of the '293 patent recites:

> 4. A multi-layer golf ball comprising:

a spherical core;

an inner cover layer having Shore D hardness of about 60 or more molded over said spherical core, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi; and

an outer cover layer having a Shore D hardness of about 64 or less disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball, said outer cover layer comprising polyurethane based material.

120. Claim 4 of the '293 patent is similar to claim 1 of the '293 patent with some differences. Claim 4 requires that the inner cover layer comprises a low-acid (<16%) ionomeric resin having a modulus of from about 15,000 to about 70,000 psi. Claim 4 also requires that the outer cover layer is dimpled. Both of these limitations are also met by the references discussed above with respect to claim 1 of the '293 patent.

1. Claim 4 of the '293 patent is anticipated by Nesbitt

121. The inner cover layer disclosed in Nesbitt is Surlyn 1605 (now 8940), which has a flexural modulus of about 51,000 psi. *See* '293 patent, col. 2:55-59; Surlyn Product Information.

122. Nesbitt also describes a dimpled outer cover. Nesbitt, col. 2:43-50.

123. Balls were made at the direction of Dr. William MacKnight that had the core described by Sullivan as the Nesbitt core, the inner cover material described by Nesbitt, and the Estane 58133 polyurethane material described by Molitor '637 as the outer cover layer material. The average Shore D hardness of the outer layer of these balls, as measured on the ball, was 62.0, which is less than 64. MacKnight Decl. ¶ 33. Thus, even under a claim construction that requires Shore D hardness to be measured on the ball, Nesbitt, incorporating by reference Molitor '637, meets the claimed hardness limitation.

124. For those reasons, and the reasons set forth for claim 1 of the '293 patent, Claim 4 of the '293 patent is anticipated by Nesbitt, which incorporates by reference Molitor '637.

2. Claim 4 of the '293 patent is obvious over Nesbitt in view of Molitor '637

125. The combination of the golf ball construction described by Nesbitt and the cover materials of Molitor '637 would render claim 4 of the '293 patent obvious for the same reasons that Nesbitt anticipates claim 4 of the '293 patent, which are set forth above, and for the reasons set forth with respect to claim 1 of the '293 patent.

3. Claim 4 of the '293 patent is obvious over Nesbitt in view of Wu

126. For the reasons set forth for claim 1 of the '293 patent, it would have been obvious to a person of ordinary skill in the art to modify the ball described by Nesbitt to use the cover material described in Wu as the outer cover material of the golf ball.

127. Balls were made at the direction of Dr. William MacKnight that had the core described by Sullivan as the Nesbitt core, the inner cover material described by Nesbitt, and the polyurethane material described by Wu in Example 1 as the outer cover layer material. The average Shore D hardness of the outer layer of these balls, as measured on the ball, was 56.0, which is less than 64. MacKnight Decl. ¶ 33. Thus, even under a claim construction that requires Shore D hardness to be measured on the ball, the golf ball of Nesbitt, modified to use the outer cover material described by Wu, meets the claimed hardness limitation.

128. For those reasons, the reasons set forth above with respect to Nesbitt anticipating claim 4 of the '293 patent, and set forth for claim 1 of the '293 patent, Claim 4 of the '293 patent would be obvious over Nesbitt in view of Wu.

4. Claim 4 of the '293 patent is obvious over Nesbitt in view of Molitor '751

129. For the reasons set forth for claim 1 of the '293 patent, it would have been obvious to a person of ordinary skill in the art to modify the ball described by Nesbitt to use the cover material described in Molitor '751 as the outer cover material of the golf ball.

130. In addition, Dr. MacKnight prepared ball samples having Nesbitt's core, an inner cover layer using the material described by Nesbitt, and an outer cover layer using a polyurethane / ionomer blend similar to the most preferred Example 4 in the Table on Columns 7 and 8 of Molitor '751. The cover material was identical to Example 4, except a slightly harder ionomer than that disclosed in Example 4 was used. Even with the harder ionomer being used, the average outer cover hardness of the sample balls was 50.1 on the Shore D scale. MacKnight Decl. ¶ 33. This measurement is well under 64, as required by the claims of the patents-in-suit. Thus, even under a claim construction that requires Shore D hardness to be measured on the ball, the golf ball of Nesbitt, modified to use the outer cover material described by Molitor '751, meets the claimed hardness limitation.

131. For those reasons, the reasons set forth above with respect to Nesbitt anticipating claim 4 of the '293 patent, and set forth for claim 1 of the '293 patent, Claim 4 of the '293 patent would be obvious over Nesbitt in view of Molitor '751.

5. Claim 4 of the '293 patent is obvious over Proudfit in view of Molitor '637, Wu, or Molitor '751

132. The inner cover layer disclosed in Proudfit is a blend of Surlyn 8940 and Surlyn 9910. These resins have a flexural modulus between about 30,000 to about 55,000 psi. "The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ASTM Method D-790." Proudfit, col. 5:66-6:1. Thus, the inner cover layer of Proudfit will inherently have a flexural modulus between 15,000 psi and 70,000 psi.

133. Proudfit also describes a dimpled outer cover. Proudfit, Fig. 1.

134. For those reasons, and the reasons set forth for claim 1 of the '293 patent, Claim 4 of the '293 patent would be obvious over a) Proudfit in view of Molitor '637; b) Proudfit in view of Wu; or c) Proudfit in view of Molitor '751.

D. Claim 5 of the '293 patent

135. Claim 5 of the '293 patent recites:

> 5. A golf ball according to claim 4, wherein said inner cover layer has a thickness of about 0.100 to about 0.010 inches and said outer cover layer has a thickness of about 0.010 to about 0.070 inches, said golf ball having an overall diameter of 1.680 inches or more.

136. For the reasons set forth for claims 1, 2 and 4 of the '293 patent, claim 5 of the '293 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

E. Claim 7 of the '293 patent

137. Claim 7 of the '293 patent recites:

> 7. A multi-layer golf ball comprising:
>
> a spherical core;
>
> an inner cover layer molded over said spherical core to form a spherical intermediate ball, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated

carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi; and

a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, said outer cover having a Shore D hardness of 64 or less, said outer layer comprising a polyurethane, said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.

138. Claim 7 of the '293 patent has similar limitations to those variously recited in claims 1 and 4 of the '293 patent, with some differences. Claim 7 requires that the outer cover layer has a modulus in the range of about 1,000 to about 30,000 psi.

139. The outer cover layer material described in Nesbitt (Surlyn 1855) has a flexural modulus of about 14,000 psi. *See* Surlyn Product Information.

140. The outer cover layer material described in Proudfit has a flexural modulus between 1,000 psi and 30,000 psi. "The relatively soft elastomeric material of the outer layer has a flexural modulus in the range of about 20,000 to 25,000 psi, and in one specific embodiment had a flexural modulus of from 22,165 to 22,369 psi." Proudfit, col. 6:28-31.

141. The Estane 58133 polyurethane disclosed in Molitor '637 has a modulus of 25,000 psi. *See* Estane 58133 Product Specification Sheet.

142. The polyurethane described as Example 1 in Wu has a flexural modulus of about 23,000 psi. Dalton PTO Decl. ¶ 7.

143. For those reasons, and the reasons set forth for claims 1 and 4 of the '293 patent, claim 7 of the '293 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Proudfit in view of Molitor '637;

d. obvious over Proudfit in view of Wu; and

EXHIBIT 1, PART 2

F. Claim 8 of the '293 patent

144. Claim 8 of the '293 patent recites:

> 8. The multi-layer golf ball of claim 7 wherein the Shore D hardness of said outer cover layer is less than the Shore D hardness of said inner cover layer.

145. Nesbitt discloses that the inner cover layer is harder than the outer cover layer. "The disclosure embraces a golf ball and method of making same wherein the golf ball has a solid … resilient center or core, and a multilayer construction, which involves a first layer or ply of molded hard, high flexural modulus resinous material on the core, and a second or cover layer of soft, low flexural modulus resinous material molded over the first layer to firm a finished golf ball." Nesbitt, Abstract.

146. Proudfit discloses that the inner cover layer is harder than the outer cover layer. "This invention relates to golf balls, and, more particularly, to a golf ball having a two-layer cover. The inner layer is formed from hard resin material such as ionomer resin, and the outer layer is formed from soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 1:11-16.

147. For those reasons, and the reasons set forth for claims 1, 4, and 7 of the '293 patent, claim 8 of the '293 patent is :

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Proudfit in view of Molitor '637;

d. obvious over Proudfit in view of Wu; and

G. Claim 1 of the '156 patent

148. Claim 1 of the '156 patent recites:

> 1. A golf ball comprising:
>
> a core;

an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;

and an outer cover layer disposed on said inner cover layer, said outer cover layer having a Shore D hardness of about 64 or less, a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

149. For the reasons set forth with respect to claim 1 of the '293 patent, claim 1 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

H. Claim 2 of the '156 patent

150. Claim 2 of the '156 patent recites:

2. The golf ball of claim 1 wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.

1. Nesbitt teaches all elements of Claim 2 of the '156 patent

151. Nesbitt teaches a golf ball with an outer cover layer whose thickness is from about 0.010 to 0.050 inches. "The thickness of the outer layer or cover 16 of soft, low flexural

modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." Nesbitt, col. 3:22-25. "The outer layer of the soft resin is of a thickness of 0.0575 inches." Nesbitt, col. 2:50-52. Thus, the lower end of the range of outer cover thicknesses disclosed in Nesbitt (0.020 inches) is within the range claimed in claim 2 of the '156 patent, and the specific outer cover layer thickness disclosed in Nesbitt (0.0575 inches) is within the approximate range claimed in claim 2 of the '156 patent. At a minimum, claimed thickness range of about 0.010 to 0.050 inches would be obvious in light of these disclosures in Nesbitt.

152. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent and claim 1 of the '156 patent, claim 2 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

2. Proudfit teaches all elements of Claim 2 of the '156 patent

153. Proudfit teaches a golf ball with an outer cover layer whose thickness is from about 0.010 to 0.050 inches. "The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch...." Proudfit, col. 7:40-46. Thus, the lower end of the range of outer cover thicknesses disclosed in Proudfit (0.0450 inches) is within the range claimed in claim 2 of the '156 patent, and the specific outer cover layer thickness disclosed in Proudfit (0.0525 inches) is within the approximate range claimed in claim 2 of the '156 patent. At a minimum, claimed thickness range of about 0.010 to 0.050 inches would be obvious in light of these disclosures in Proudfit.

154. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent and claim 1 of the '156 patent, claim 2 of the '156 patent is:

a. obvious over Proudfit in view of Molitor '637;

b. obvious over Proudfit in view of Wu; and

c. obvious over Proudfit in view of Molitor '751.

I. Claim 3 of the '156 patent

155. Claim 3 of the '156 patent recites:

> 3. The golf ball of claim 1 wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.

1. Nesbitt teaches all elements of Claim 3 of the '156 patent

156. Nesbitt teaches a golf ball with an outer cover layer whose thickness is from about 0.030 to 0.060 inches. "The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." Nesbitt, col. 3:22-25. "The outer layer of the soft resin is of a thickness of 0.0575 inches." Nesbitt, col. 2:50-52. Thus, the specific outer cover layer thickness disclosed in Nesbitt (0.0575 inches) is within the range claimed in claim 3 of the '156 patent.

157. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent and claim 1 of the '156 patent, claim 3 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

2. Proudfit teaches all elements of Claim 3 of the '156 patent

158. Proudfit teaches a golf ball with an outer cover layer whose thickness is from about 0.030 to 0.060 inches. "The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are … an outer layer thickness of 0.0525 inch…." Proudfit, col. 7:40-46. Thus, the lower end of

the range of outer cover thicknesses disclosed in Proudfit (0.0450 inches) is within the range claimed in claim 3 of the '156 patent, and the specific outer cover layer thickness disclosed in Proudfit (0.0525 inches) is within the range claimed in claim 3 of the '156 patent.

159. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent and claim 1 of the '156 patent, claim 3 of the '156 patent is:

a. obvious over Proudfit in view of Molitor '637;

b. obvious over Proudfit in view of Wu; and

c. obvious over Proudfit in view of Molitor '751.

J. Claim 4 of the '156 patent

160. Claim 4 of the '156 patent recites:

4. A golf ball comprising:

a core:

an inner cover layer disposed about said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more ionomeric resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;

and an outer cover layer disposed on said inner cover layer, said outer cover layer having a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

161. For the reasons set forth with respect to claim 1 of the '293 patent, claim 4 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

K. Claim 5 of the '156 patent

162. Claim 5 of the '156 patent recites:

> 5. The golf ball of claim 4 wherein said outer cover exhibits a Shore D hardness of about 64 or less.

163. For the reasons set forth with respect to claim 1 of the '293 patent, claim 5 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

L. Claim 6 of the '156 patent

164. Claim 6 of the '156 patent recites:

> 6. The golf ball of claim 4 wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.

165. For the reasons set forth with respect to claims 1 of the '293 patent and claim 2 of the '156 patent, claim 6 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

M. Claim 7 of the '156 patent

166. Claim 7 of the '156 patent recites:

> 7. The golf ball of claim 4 wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.

167. For the reasons set forth with respect to claim 1 of the '293 patent and claim 3 of the '156 patent, claim 7 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

N. Claim 8 of the '156 patent

168. Claim 8 of the '156 patent recites:

> 8. A golf ball comprising:
>
> a core:
>
> an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of about 60 or more, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;

and an outer cover layer disposed about said inner cover layer, said outer cover layer having a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

169. For the reasons set forth with respect to claims 1 and 4 of the '293 patent, claim 8 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

O. Claim 9 of the '156 patent

170. Claim 9 of the '156 patent recites:

9. The golf ball of claim 8 wherein said outer cover exhibits a Shore D hardness of about 64 or less.

171. For the reasons set forth with respect to claims 1 and 4 of the '293 patent, claim 9 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

P. Claim 10 of the '156 patent

172. Claim 10 of the '156 patent recites:

> 10. The golf ball of claim 8 wherein said outer cover layer has a thickness of from about 0.01 to about 0.05 inches.

173. For the reasons set forth with respect to claims 1 and 4 of the '293 patent and claim 2 of the '156 patent, claim 10 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

Q. Claim 11 of the '156 patent

174. Claim 11 of the '156 patent recites:

> 11. The golf ball of claim 8 wherein said outer cover layer has a thickness of from about 0.03 to about 0.06 inches.

175. For the reasons set forth with respect to claims 1 and 4 of the '293 patent and claim 3 of the '156 patent, claim 11 of the '156 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

R. Claim 1 of the '130 patent

176. Claim 1 of the '130 patent recites:

> 1. A golf ball comprising:
>
> a core;
>
> an inner cover layer having a Shore D hardness of 60 or more molded on said core, the inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;
>
> and an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer, said outer cover layer comprising a relatively soft polymeric material selected from the group consisting of non-ionomeric thermoplastic and thermosetting elastomers.

177. As discussed in detail above, Molitor '637, Wu, and Molitor '751 all disclose polyurethane cover materials to be used as the outer cover of a golf ball. The polyurethane cover materials disclosed in those references are in the group consisting of non-ionomeric thermoplastic and thermosetting elastomers.

178. For those reasons and the reasons set forth with respect to claim 1 of the '293 patent, claim 1 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

1. Claim 1 of the '130 patent is anticipated by Proudfit

179. Proudfit discloses all of the elements of claim 1 of the '130 patent. Claim 1 of the '130 patent is very similar to claim 1 of the '293 patent. The main difference is that while claim 1 of the '293 patent specifically claims polyurethane as the outer cover material, claim 1 of the '130 patent instead claims "a relatively soft polymeric material selected from the group consisting of non-ionomeric thermoplastic and thermosetting elastomers" as the outer cover material. Such an outer cover material is disclosed in Proudfit.

180. Specifically, as set forth in detail above, Proudfit discloses a multi-layer golf ball with a relatively hard blended ionomer inner cover layer and a blend of polybutadiene and balata-like material as the outer cover layer. *See* discussion above of claim 1 of the '293 patent compared to Proudfit.

181. The chart below sets for the shows the specific disclosures in Proudfit that are set forth in claim 1 of the '130 patent:

Claim 1 of '130 patent	**Proudfit**
1. A golf ball comprising:	"This invention relates to golf balls, and more particularly, to a golf ball having a two-layer cover." Proudfit, col. 1:11-12; Figs. 1-2.
A core;	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; Figs 1-2; *see also* col. 7:51-55.
an inner cover layer having	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; Figs 1-2.
a Shore D hardness of 60 or more molded on said core,	"The composition of the inner cover layer is described in Table 6." Proudfit, col. 8:22-30. Table 6 sets forth a blend of ionomers that consists of 75% Surlyn 8940 and 25% Surlyn 9910. *Id.* Surlyn 8940 has a Shore D hardness of 65, as measured off the ball. Surlyn 9910 has a Shore D hardness of 64, as measured off

Claim 1 of '130 patent	Proudfit
	the ball. *See* Surlyn Product Information. Thus, this blend of ionomers would have a Shore D hardness of between 64 and 65, which is greater than 60. The inner cover material is molded, by one of two methods, over the core. Proudfit, col. 8:32-38.
the inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and	Surlyn 8940 and Surlyn 9910 are both low acid ionomers containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.
an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer,	"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; *see also* Figs 1-2. "… an outer layer of soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17. It was well known to people of ordinary skill in the art in 1995 that balata had a shore D of less than 64. In addition, Proudfit describes a blend of polybutadiene and thermoset elastomer like balata as an example of the cover material in Table 7. Proudfit, col. 8:43-55. According to the Declaration of Ed. Hebert, submitted as part of the reexamination proceedings, this material has a Shore D hardness of less than 64. Hebert PTO Decl. ¶ 7.
said outer cover layer comprising a relatively soft polymeric material selected from the group consisting of non-ionomeric thermoplastic and thermosetting elastomers	Proudfit discloses the use of a soft polymeric outer cover layer material in the group consisting of non-ionomeric thermoplastic and thermosetting elastomers. "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." Proudfit, col. 7:21-24; *see also* Figs 1-2. "… an outer layer of soft material such as balata or a blend of balata and other elastomers." Proudfit, col. 5:15-17. Table 7 sets forth the composition of the outer cover layer of the preferred embodiment of Proudfit. Proudfit, col. 8:45-55. This

Claim 1 of '130 patent	Proudfit
	composition includes polybutadiene and TP-301 (synthetic balata). A person of ordinary skill in the art would readily have understood that both of these materials are relatively soft polymeric materials that are non-ionomeric thermoset elastomers.

182. Accordingly, for those reasons, it is my opinion that claim 1 of the '130 patent is anticipated by Proudfit.

S. Claim 2 of the '130 patent

183. Claim 2 of the '130 patent recites:

> 2. A golf ball according to claim 1, wherein the inner cover layer has a thickness of about 0.100 to about 0.010 inches and the outer cover layer has a thickness of about 0.010 to about 0.070 inches, the golf ball having the properties required by the U.S.G.A. and having an overall diameter of 1.680 inches or more.

184. For the reasons set forth with respect to claims 1 and 2 of the '293 patent, claim 2 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

1. Claim 2 of the '130 patent is anticipated by Proudfit

185. Proudfit discloses all of the elements of claim 2 of the '130 patent. The chart below sets for the shows the specific disclosures in Proudfit that are set forth in claim 2 of the '130 patent:

Claim 2 of '130 patent	Proudfit
2. A golf ball according to claim 1,	See discussion of claim 1 of the '130 patent compared to Proudfit.
wherein the inner cover layer has a thickness of about 0.100 to about 0.010 inches and	"The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." Proudfit, col. 7:37-40. "The preferred dimensions are … inner layer thickness of 0.037 inch." Proudfit, col. 7:43-44.
the outer cover layer has a thickness of about 0.010 to about 0.070 inches,	"The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are … an outer layer thickness of 0.0525 inch…." Proudfit, col. 7:40-46.
the golf ball having the properties required by the U.S.G.A. and having an overall diameter of 1.680 inches or more.	The USGA Rules of Golf define the minimum diameter of a golf ball to be 1.680 inches. See, e.g., Nesbitt, col. 2, ll. 50-54. A person of ordinary skill in the art would understand that it was an inherent property of the golf ball disclosed in Proudfit that it must have the properties required by the U.S.G.A. Proudfit explicitly discloses that its golf ball has a diameter of 1.680 inches. "The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." Proudfit, col. 7:43-47.

186. Accordingly, for those reasons, it is my opinion that claim 2 of the '130 patent is anticipated by Proudfit.

T. Claim 4 of the '130 patent

187. Claim 4 of the '130 patent recites:

> 4. A golf ball according to claim 1 wherein the outer layer comprises a polyurethane based material.

188. For those the reasons set forth with respect to claim 1 of the '293 patent, claim 4 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

U. Claim 5 of the '130 patent

189. Claim 5 of the '130 patent recites:

5. A multi-layer golf ball comprising:

a spherical core;

an inner cover layer having a Shore D hardness of about 60 or more molded over said spherical core, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;

an outer cover layer having a Shore D hardness of about 64 or less molded over said spherical intermediate ball to form a multi-layer golf ball, the outer layer comprising polyurethane based material.

190. For the reasons set forth with respect to claims 1 and 4 of the '293 patent, claim 5 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

V. Claim 6 of the '130 patent

191. Claim 6 of the '130 patent recites:

6. A multi-layer golf ball comprising:

a spherical core;

an inner cover layer molded over said spherical core to form a spherical intermediate ball, said inner cover layer having a Shore D hardness of 60 or greater and comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;

an outer cover layer molded about said spherical intermediate ball to form a multi-layer golf ball, the outer layer comprising a non-ionomeric elastomer selected from the group consisting of polyester elastomer, polyester, polyether polyurethane and polyester amide, said outer cover layer having a modulus in the range of about 1,000 to about 30,000 psi and a Shore D hardness of 64 or less.

192. For the reasons set forth with respect to claims 1, 4, and 7 of the '293 patent, claim 6 of the '130 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Proudfit in view of Molitor '637;

d. obvious over Proudfit in view of Wu; and

W. Claim 1 of the '873 patent

193. Claim 1 of the '873 patent recites:

1. A golf ball comprising:

a core;

an inner cover layer disposed on said core, said inner cover layer having a thickness of from about 0.100 to about 0.010 inches, said inner cover layer comprising a blend of two or more ionomer resins, at least one of which contains no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid;

and an outer cover layer disposed on said inner cover layer, said outer cover layer having a thickness of 0.010 to 0.070 inches, and said outer cover layer comprising a polyurethane material, wherein said golf ball has an overall diameter of 1.680 inches or more, said inner cover layer having a Shore D hardness of at least 60, and said outer cover layer having a Shore D hardness of less than 64.

194. For the reasons set forth with respect to claims 1 and 2 of the '293 patent, claim 1 of the '873 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

X. Claim 3 of the '873 patent

195. Claim 3 of the '873 patent:

3. A multi-layer golf ball comprising:

a spherical core;

an inner cover layer having Shore D hardness of at least 60 disposed on said spherical core, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;

and an outer cover layer having a Shore D hardness of about 64 or less disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball, said outer cover layer comprising a polyurethane based material and said outer cover layer having a thickness of from about 0.010 to about 0.070 inches.

196. For the reasons set forth with respect to claims 1 and 4 of the '293 patent, claim 3 of the '873 patent is:

a. anticipated by Nesbitt, or in the alternative, obvious over Nesbitt in view of Molitor '637;

b. obvious over Nesbitt in view of Wu;

c. obvious over Nesbitt in view of Molitor '751;

d. obvious over Proudfit in view of Molitor '637;

e. obvious over Proudfit in view of Wu; and

f. obvious over Proudfit in view of Molitor '751.

Y. Prior Art Golf Balls

197. In addition to the combinations of prior art patent references above, I have also examined the properties and materials of prior art golf balls, in particular, the Wilson Ultra Tour Balata 100, Titleist Professional, and Titleist Professional 2P golf balls.

198. I relied on the declaration of Ed Hebert, Senior Manager of Product Development at Acushnet, which was submitted in the reexaminations of the patents-in-suit, as well as the competitive ball database information Mr. Hebert attaches to that declaration for the properties of

the Wilson Ultra Tour Balata 100 ball. In addition, I have reviewed and relied on Acushnet's 1993 competitive ball report entry for the Wilson Ultra Tour Balata 100 ball itself (produced at bates number AC0072945).

199. The Wilson Ultra Tour Balata 100 golf ball released in 1993 was a multi-layer golf ball. As part of the routine testing Acushnet performs on competitive balls, Acushnet measured the dimensions and physical properties of the Wilson Ultra Tour Balata 100 ball, and measured physical properties of the golf ball, such as Shore D hardness of the cover layers.

200. According to Acushnet's testing in 1993, the Wilson Ultra Tour Balata 100 had the following properties. It had a solid core. It had an inner cover layer whose thickness was 0.030 inches. The inner cover layer was made from a blend of sodium and zinc ionomers. The inner cover layer had a Shore D hardness of about 70. It had an outer cover layer whose thickness was 0.050 inches. The outer cover layer was a blend of polybutadiene and synthetic balata. The outer cover layer had a Shore D hardness of about 52. The ball also had dimples. *See* AC0072945.

201. In addition, I understand that the Wilson Ultra Tour Balata 100 had an inner cover layer that was made of a blend of Surlyn 8940 and Surlyn 9910. Surlyn 8940 is a low-acid (<16%) sodium ionomer and Surlyn 9910 is a low-acid (<16%) zinc ionomer. This is consistent with the testing of the Wilson Ultra Tour Balata 100 that Acushnet did.

202. Based on the properties of the Wilson Ultra Tour Balata 100, it is very similar to the description of the golf ball in Proudfit. In particular, Proudfit describes similar dimensions for the inner cover layer (between 0.0250 and 0.2875 inches), similar dimensions for the outer cover layer (0.0450 to 0.0650 inches), similar materials for the inner cover layer (blend of sodium and zinc ionomers Surlyn 8940 and 9910), and similar materials for the outer cover layer (blend of polybutadiene and synthetic balata). In addition, as described above with respect to the Proudfit patent, Surlyns 8940 and 9910 are standard ionomers with a flexural modulus from 30,000 to about 55,000, which is well within the claimed range of from about 15,000 to about 70,000 psi.

203. With the exception of the use of polyurethane as an outer cover layer material, the Wilson Ultra Tour Balata 100 satisfies every limitation of claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent. In particular, the golf ball had:

a. a spherical core;

b. an inner cover layer having a Shore D hardness of 60 or more (70);

c. an inner cover layer with a thickness of 0.100 to 0.010 inches (0.030);

d. an inner cover layer with a blend of low acid ionomers;

e. an inner cover layer made of materials whose flexural modulus is between about 15,000 and about 70,000 psi;

f. an outer cover layer having a Shore D hardness of 64 of less (52);

g. an outer cover layer with a thickness of 0.010 to 0.070 inches (0.050);

h. an outer cover layer with a thickness of between 0.010 and 0.050 inches (0.050);

i. an outer cover layer with a thickness of between 0.030 and 0.060 inches (0.050);

j. an outer cover layer made of material whose flexural modulus is between about 1,000 and 30,000 psi;

k. an outer cover layer whose Shore D hardness is less than the Shore D hardness of the inner cover layer;

l. an overall diameter of 1.680 inches; and

m. dimples on the outer cover layer.

204. For the same reasons that it would have been obvious to use the polyurethane cover materials disclosed in Wu and Molitor '751 as the cover material of the golf ball described by Proudfit, it would have also been obvious to use those polyurethane cover materials as a replacement for the cover material of the Wilson Ultra Tour Balata 100 golf ball. For example, Wu suggests using its polyurethane as a replacement cover material for balata-covered golf balls.

Wu, col. 1:34-46; 2:28-32. And Molitor '751 suggests using its polyurethane as a replacement cover material for multilayer golf balls. Molitor '751, col. 3:7-12.

205. If the Wilson Ultra Tour Balata 100 were modified to use the polyurethanes described in Wu or Molitor '751 as the outer cover layer, it is my opinion that the outer cover layer of that modified ball would have similar properties to the outer cover layer of a ball described by Proudfit that has been modified to use the polyurethanes described in Wu or Molitor '751 as the outer cover layer.

206. For the reasons stated above and those stated with respect to my discussion of Proudfit, it is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent are:

a. obvious over the Wilson Ultra Tour Balata 100 golf ball in view of Wu.

b. obvious over the Wilson Ultra Tour Balata 100 golf ball in view of Molitor '751.

207. For the reasons stated above, it is my opinion that claims 1-3 of the '130 patent are anticipated by the Wilson Ultra Tour Balata 100 golf ball.

208. In addition, the Titleist Professional and Titleist Professional 2P were both sold by Acushnet as of 1994. Based on my investigation of these balls, including discussions with Acushnet personnel, both of these golf balls had a polyurethane very similar, if not identical, to the polyurethane described in the Wu patent. The Titleist Professional had a wound core and a polyurethane cover. The Titleist Professional 2P had a solid core and a polyurethane cover.

209. As I have discussed extensively in this report, a person of ordinary skill in the art in 1995 would have known about the benefits of polyurethane as a cover material, since polyurethanes had been used as cover materials in golf balls for years, dating back at least to the Spalding Executive. In addition, it was commonplace in 1995 for golf ball designers to experiment with replacing cover materials with other cover materials that had similar mechanical properties. Thus, it would have been obvious to a person of ordinary skill in the art to modify

the Wilson Ultra Tour Balata 100 golf ball by using the polyurethane of the Titleist Professional or the Titleist Professional 2P as the material for the outer cover layer of the ball.

210. For the reasons set forth above in this section and the reasons set forth in this report with respect to the combination of Proudfit and Wu, it is my opinion that claims 1-2, 4-5, and 7-8 of the '293 patent, claims 1-11 of the '156 patent, claims 1-2 and 4-6 of the 130 patent, and claims 1 and 3 of the '873 patent are:

a. obvious over the Wilson Ultra Tour Balata 100 golf ball in view of the Titleist Professional golf ball; and

b. obvious over the Wilson Ultra Tour Balata 100 golf ball in view of the Titleist Professional 2P golf ball.

211. If I am provided additional test data or information regarding the Wilson Ultra Tour Balata 100, Titleist Professional or Titleist Professional 2P golf balls, I reserve the right to analyze that test data and/or information to supplement my analysis and opinions expressed in this section of my report.

VIII. SECONDARY FACTORS

212. I understand that the secondary factors that may sometimes bear on the question of obviousness or non-obviousness include commercial success of the invention, a long-felt but unsolved need for the invention, the failure of others to invent the claimed subject matter, an unexpected or improved result due to the invention, and commercial acquiescence to the validity of the patent. I also understand that, in asserting that these factors demonstrate the non-obviousness of a patent, a patentee must establish that a nexus exists between any such asserted objective evidence and the claimed features of the invention.

213. I have read Callaway's response to the office actions in the pending reexaminations of the patents-in-suit, in which Callaway discusses purported secondary factors of non-obviousness in this case. I have also read Callaway's supplemental response to

Acushnet's Interrogatory No. 7, in which Callaway sets forth additional alleged secondary factors of non-obviousness.

A. Commercial Success

214. From Callaway's contentions, I understand that Callaway argues that Acushnet's Pro V1 and Callaway's Rule 35 golf balls were commercially successful, and therefore that this provides objective evidence that the patents-in-suit were not obvious. I disagree with this argument.

215. First, Callaway's arguments rely on the assumption that Acushnet's Pro V1 and Callaway's Rule 35 balls are covered by the patents-in-suit. I am informed that Acushnet denies that its Pro V1 family of golf balls infringe the patents-in-suit. I have not studied whether the Pro V1 or Rule 35 golf balls are covered by the patents-in-suit, nor do I currently have an expert opinion on that subject. However, if those golf balls are not covered by the patents-in-suit, any commercial success of those products logically could not be attributable to the patents-in-suit.

216. Second, even assuming that the Pro V1 and Rule 35 golf balls are covered by the claims of the patents-in-suit, Callaway has not, in the papers that I have read, established a "nexus" between any commercial success that the Pro V1 and Rule 35 balls have had and the technology of the patents-in-suit. In other words, Callaway has not demonstrated, in my opinion, that the reason the Pro V1 was successful, and the Rule 35 balls were allegedly successful, was due to the fact that they are allegedly covered by the claims of the patents-in-suit.

217. In my opinion, even assuming that the Pro V1 family of golf balls are covered by the claims of the patents-in-suit, there are many reasons for the success of those Pro V1 golf balls that are not implicated by the claims of the '293 patent. I set forth some of these reasons below.

1. The Pro V1 golf balls have good performance for many reasons other than that they are multi-layer, polyurethane-covered golf balls

218. From a technical performance perspective, I understand that the Pro V1 is a good performing golf ball, in that it achieves good distance off the tee in combination with good spin

and control around the greens. This good performance is due to many technical features of the Pro V1 construction. I describe some of these technical features below.

219. I have reviewed the declarations of Bill Morgan, Jerry Bellis, and Davis Love III, that were submitted in the pending litigation between Bridgestone Sports and Acushnet. In those declarations, Messrs. Morgan, Bellis, and Love all describe technical features of the Pro V1 construction that contribute to its high performance. *See* Morgan Decl. ¶¶ 47-49; Bellis Decl. ¶ 72; Love Decl. ¶ 29. I agree with the descriptions by Messrs. Morgan, Bellis and Love of what technical features of the Pro V1 lead to his high performance.

220. First, the Pro V1 has a very large core (about 1.53 inches), which contributes to the energy and power that can be generated off of the tee, and contributes to reduced spin characteristics of the ball off the tee. This large core distinguishes the Pro V1 ball construction from other golf balls, including multi-layer golf balls, and is made possible by the ability to mold a very thin inner cover layer and case a very thin outer cover layer.

221. Second, the Pro V1 has a very thin intermediate layer (about 0.045 inches), made possible by manufacturing techniques that I understand were developed by Acushnet. This thin inner cover layer allows for a larger core, as described above.

222. Third, the ball has a very thin outer cover layer (about 0.030 inches), which is made with a cast urethane material. At the time the Pro V1 was released, in 2000, 0.030 inches was very thin for an outer cover layer by golf ball cover standards.

223. Fourth, the proprietary cast urethane that is used in the outer cover of the Pro V1 is a high performance urethane that has very good durability properties.

224. Fifth, I understand that the Pro V1 had unique aerodynamics that contributed to its performance.

225. Sixth, I understand that Acushnet uses very strict quality control standards and procedures, which contribute to the consistency of Pro V1 balls.

226. I understand that there are many other technical features of the Pro V1 balls, both in terms of its construction, materials, and the manufacturing methods used to make the balls,

that contribute to its performance. For example, according to Mr. Morgan, head of R&D for golf balls at Acushnet, there are over 60 patents used in making the Pro V1 and Pro V1x golf balls. Morgan Decl. ¶ 56. I have reviewed many of these patents, and they include technologies of Acushnet ranging from aerodynamics, adhesion between cover layers, core composition, improved painting methods, improved manufacturing techniques, and many others. *See, e.g.*, U.S. Patent Nos. 5,018,742; 5,795,529; 5,957,786; 6,315,915; 6,635,716; 6,755,912, to name just a few. To say that the high performance of the Pro V1 golf balls is due merely to the fact that they are multi-layer and urethane-covered ignores the fact that there are clearly many more technological advances and innovations contributing to the performance of the ball.

2. The patents-in-suit do not describe golf balls similar in construction to the Pro V1 golf balls

227. As I describe above, the combination of the very large core, thin inner cover layer, and very thin urethane outer cover layer is one of the primary reasons for the high performance of the Pro V1 golf balls. This type of golf ball construction is neither contemplated nor described in the patents-in-suit.

228. The patents-in-suit describe the use of various materials that may be used as the outer cover layer, including soft ionomers, blends of hard and soft ionomers, soft thermoplastic and thermoset materials, thermoplastic urethanes, thermosetting urethanes, and polyester amides. In fact, most of the discussion of the patents-in-suit is devoted to examples using ionomer outer covers over ionomer inner covers.

229. The only example in the patents-in-suit that describe using castable polyurethane (like the polyurethane used in the Pro V1) is in Example 4. *See, e.g.*, '293 patent, col. 22:30-23:40. Each of the cast urethane-covered example balls described in Example 4 has a substantially different construction than that of the Pro V1. These example balls are listed as examples 23-5 in Table 9. While the Pro V1 has a very large core (about 1.53 inches), the core of these examples is substantially smaller (1.47 inches). Similarly, while the Pro V1 has a super

thin outer cover layer (0.030 inches), these example balls have a much thicker outer cover layer (0.050 to 0.055 inches).

230. Accordingly, the specification of the patents-in-suit does not teach or suggest a ball construction like the Pro V1, which has a very large core and a super thin outer cover layer. Nor do the patents-in-suit suggest that a construction like the Pro V1 would have advantages over other multi-layer, urethane-covered golf balls. In fact, the examples described above teach away from using a construction like the Pro V1.

231. In addition, the description of the patents-in-suit is not limited to the use of solid cores. "The golf balls of the present invention can be produced by … injection molding or compression molding the inner cover layer about wound or solid molded cores…." *See, e.g.*, '293 patent, col. 15:14-19.

232. I understand that the claims of the patents-in-suit should not be limited to the preferred embodiments described in the specification, and this section of my report is not intended to suggest otherwise. But the fact that the description of the patents-in-suit does not suggest using a construction like the Pro V1, and in fact suggests constructions much different from that of the Pro V1, suggests that the reason for the high performance of the Pro V1 is due to something else other than merely the fact that the Pro V1 is a multi-layer, urethane covered golf ball, as described and claimed in the patents-in-suit.

3. The claims of the patents-in-suit are extremely broad and would encompass balls nothing like the Pro V1

233. The claims of the patents-in-suit set forth extremely broad ranges for the thicknesses of the inner cover layer and outer cover layer.

234. For example, claim 1 of the '293 patent claims that the inner cover layer can be from 0.100 to 0.010 inches. All of the other independent claims of the patents-in-suit claim a similar range. In the world of golf ball design, this range is vast. In my experience, golf balls that have an inner cover thickness of 0.100 inches (which would be considered very thick) would

perform substantially differently from golf balls that an have inner cover thickness of 0.010 inches (which would be considered very thin).

235. Similarly, claim 1 of the '293 patent claims that the outer cover layer can be between 0.010 and 0.070 inches. Again, this is a vast range. In my experience, golf balls that have an outer cover thickness of 0.010 inches (which would be considered extremely thin) would perform substantially differently from golf balls that have an outer cover thickness of 0.070 inches (which would be considered very thick).

236. For example, multi-layer golf balls with outer cover thicknesses of 0.010 inches would be, in my experience and opinion, likely to have durability, consistency, and manufacturing problems (especially since dimples are typically thicker than 0.010 inches). Moreover, it is not clear whether such a cover would be too thin to realize the advantage of having a soft outer cover layer at all (such as spin and control around the greens).

237. Similarly, multi-layer golf balls with an outer cover thickness of 0.070 inches (made of relatively soft material, as claimed in the patents-in-suit) would be, in my experience and opinion, very likely to have resilience issues. Such balls would likely have very poor distance off the tee.

238. In addition, the claims of the patents-in-suit say nothing about the diameter of the core. Given the huge ranges for cover thicknesses, the core of the golf balls claimed in the patents-in-suit could range anywhere from 1.34 inches to 1.64 inches, which is a world of difference in golf ball construction.

239. The claims of the patents in suit are also not limited to golf balls having a solid core. The specification of the patents-in-suit clearly state that wound cores may be used in the invention. "The golf balls of the present invention can be produced by … injection molding or compression molding the inner cover layer about wound or solid molded cores…." *See, e.g.*, '293 patent, col. 15:14-19. Thus, golf balls using the claimed construction can have solid cores or wound cores. The choice of whether to use a solid core or a wound core would, in my experience, have an enormous impact on the performance of the golf ball.

240. In short, while the claims of the patents-in-suit clearly specify a general construction for golf balls (a multi-layer construction, a relatively hard ionomer inner cover layer, and a relatively soft outer cover layer), they provide very little direction beyond that in terms of dimensions of the various layers or even the type of core to be used.

241. As a result of the breadth of the claims, there is still a huge amount of experimentation and decision-making that needs to be done to choose the right combination of materials and dimensions within the broad confines of a "multi-layer, urethane-covered golf ball." Different combinations of core size, inner cover thickness, and outer cover thickness will lead to wildly different performance. Choices of solid cores versus wound cores will also lead to very different performance.

242. As discussed in this section, the claims of the patents-in-suit would embody golf balls that look nothing like the Pro V1, and balls that would have incredibly poor performance compared to the Pro V1. Thus, in my opinion, it is absolutely incorrect to say that the good performance of the Pro V1 is due to merely to the fact that it allegedly is covered by the claims of the patents-in-suit. Instead, it is the particular choices that Acushnet made (in terms of core diameter, inner cover thickness, outer cover thickness, materials for each component, manufacturing processes, etc.), that make the Pro V1 perform the way that it does. Virtually none of those choices are dictated, or even discussed, by the broad claims of the patents-in-suit.

243. I am informed that in order to use commercial success of a product to support an argument of non-obviousness, the product that is commercially successful must be commensurate in scope with the claims at issue. Here, as demonstrated above, that is not the case. Here, even if the Pro V1 falls within the claims of the patents-in-suit, the claims are much broader than the specific design characteristics of the Pro V1 family of golf balls.

4. The commercial success of the Pro V1 golf balls is due to many factors other than their construction

244. Apart from the performance of the Pro V1 golf balls, there are also many other factors, some extremely important, that have made the Pro V1 golf balls successful, in my

opinion. While I am not an expert in market demand or market conditions, I have in my experience working with golf companies been exposed to the different reasons for the commercial success or failure of golf balls.

245. I understand that Callaway released its Rule 35 golf balls (FirmFeel and SoftFeel) in early 2000, and Acushnet released its Pro V1 golf ball in late 2000. I also understand that the Rule 35 balls were very similar in construction to the Pro V1 balls. In particular, I understand that they had a very thin outer cover layer made of cast urethane, a thin inner cover layer, and a relatively large solid core.

246. My understanding is that in 2000 the most popular ball on tour was the Titleist Professional ball, which was a wound, polyurethane-covered golf ball. When the Pro V1 was released, most tour players that were using the Titleist Professional ball switched to the Pro V1 ball. In addition, the Pro V1 ball became the most popular premium golf ball among amateur players.

247. There are many reasons, in my experience and opinion, why tour players, and amateur players, switched to the Pro V1 ball. I have reviewed the declarations of Jerry Bellis and Davis Love III that were submitted in the pending litigation between Bridgestone Sports and Acushnet. In those declarations, Messrs. Bellis and Love describe their perceived reasons for the commercial success of the Pro V1 golf ball. *See* Bellis Decl. ¶¶ 72-74; Love Decl. ¶ 27. Given my experience working with golf ball companies, including Acushnet, the reasons they express for the success of the Pro V1 are entirely plausible to me. Some of these reasons are set forth below.

248. First, demand, especially on the professional tours, changed somewhat to desire a ball with less spin off the tee than traditional wound balls in the late 1990s and early 2000s. Balls with solid, multilayer construction were well suited to this changing market demand. This change in market demand was due to several factors, including the following:

a. The introduction and prevalence of oversized metal woods and titanium drivers, which led to a greater desire for low-spinning balls, such as solid, multilayer balls.

b. Professional golfers became better athletes. Young players, including Tiger Woods, emerged who were stronger and had more power to hit the ball off the tee with higher club head speeds. This too led to a desire for balls with lower spin off the tee, such as solid, multilayer balls.

c. Tiger Woods had phenomenal success on the professional tour in the late 1990s, and then switched to a solid, multilayer ball from Nike in May of 2000, after which he continued to have enormous success on tour. This drove other professionals to want to play a solid, multilayer ball.

249. A second important reason for the commercial success of the Pro V1 balls is the Titleist brand itself. The golf ball business is a very brand-driven business, for both professionals and amateurs. Professionals traditionally exhibit a great deal of brand loyalty. Players who play a particular company's golf ball are likely to use that company's new ball when it releases a new ball. Titleist in particular has a reputation for quality and performance, and many professional players who switched to the Pro V1 were players who had previously used the Titleist Professional. Indeed, if performance of the golf ball were the only thing driving commercial success of golf balls, one would expect the Rule 35 ball to have taken a large share of the golf ball market, especially during the period in 2000 when the Rule 35 had been released but before the Pro V1 had been released. Even after the Pro V1 was released, the Rule 35 balls had very similar construction and performance to the Pro V1 balls. But the Rule 35 balls never reached anywhere close to the market share that the Pro V1 balls attained. This tells me that the success of the Pro V1 had to do with factors other than just the performance and construction of the ball.

250. A third important reason for the commercial success of the Pro V1 is the effect of professional players on amateur players. In my experience, amateur players choose golf balls in

large part based on what professionals are playing. When professional players switched in large numbers to the Pro V1 ball from the Titleist Professional ball, many amateur players did the same.

251. It is also noteworthy that the patents-in-suit were developed by Spalding, not Callaway or Titleist. Despite the fact that the invention of the patents-in-suit was apparently conceived by 1995 at Spalding, I am informed that Spalding did not release a golf ball using the claimed multilayer, polyurethane construction until well after Acushnet and Callaway did so in 2000. If the technology of the patents-in-suit were such a breakthrough over the prior art, I would have expected Spalding to have taken advantage of this technology well before it did.

252. In short, the commercial success of the Pro V1 family of golf balls is due to many factors, both technological and market-related, that are not claimed features of the patents-in-suit. In my opinion the success of the Pro V1 golf balls cannot be attributed to the fact that they allegedly practice the claims of the patents-in-suit.

B. Long-Felt Need

253. I understand that Callaway argues that there was a long-felt need to create golf balls with good distance off the tee and good spin and control around the greens. I do not disagree that this has been a design goal for designers of golf balls for years. However, this remains a design goal of golf ball designers today, and in my opinion will remain a design goal. Since players are not, according to the rules of golf, allowed to use one type of ball off the tee, another type of ball in the fairway, another type of ball in the rough, and another type of ball for putting, there will in my opinion always be a desire for a ball that has length off the tee and control around the greens.

254. I understand that Mr. Morgan made an effort to find golf ball patents that express the design goal of creating balls that are long off the tee and provide good control around the greens. His research indicated that over 55 Spalding patents, going back to the 1980s, over 20

Callaway patents, over 60 Sumitomo patents, and over 150 Bridgestone patents describe such an objective. Morgan Decl. ¶ 74. This is consistent with my experience looking at golf ball patents.

255. The fact that creating a golf ball that is long off the tee and provides control around the greens has been, and continues to be, a design goal does not in any way impact the my opinion of whether the patents-in-suit are obvious.

C. Unexpected Results / Improved Results

256. I understand from Callaway's arguments set forth in the reexamination filings and interrogatory responses that Callaway argues that the praise and improved results of the Pro V1 golf ball is further evidence that the invention of the patents-in-suit is not obvious. This argument is premised on the flawed assumption that the Pro V1 *is* the patents-in-suit, and it ignores the fact that there are many more technological advances and innovations contributing to the performance and resultant praise of the Pro V1 balls than just the fact that it is a three-piece urethane-covered ball, including substantial Acushnet patented technology. As I described in great detail above, the Pro V1 embodies design choices, such as materials and dimensions, that much more specific than the broad claims of the patents-in-suit. Callaway has also not explained how the praise of the Pro V1 is associated with the patents-in-suit rather than Acushnet's technology used to design and make the Pro V1, or the marketing campaigns and widespread loyalty to the Titleist brand that surround the Pro V1.

257. The fact that the Pro V1 produced very good results, and received praise from many sources, does not bear a sufficient enough connection to the claims of the patents-in-suit, in my opinion, to conclude that the patents-in-suit are not obvious.

258. In addition, Callaway does not identify any unexpected results due to the invention of the patents-in-suit. All of the prior art discussed in this report explain the advantages of using a multi-layer construction, and the advantages of using polyurethane as an outer cover material. Thus, any good results of using a multi-layer construction with a polyurethane cover were known in the art and to be expected.

D. Failure of Others

259. I understand from Callaway's reexamination filings that it argues that Dennis Nesbitt tried and failed to make the claimed invention of the patents-in-suit in the late 1970s, and that this alleged failure is evidence that the patents-in-suit were not obvious in 1995. I disagree with this line of argument.

260. I have read the deposition of Mr. Nesbitt that was submitted in conjunction with Callaway's reexamination filings. My reading of Mr. Nesbitt's transcript leads to quite the opposite conclusion as that expressed by Callaway. Contrary to Callaway's claim, Mr. Nesbitt did not fail to make the claimed invention in the 1970s – he succeeded in doing so, and quite easily.

261. Mr. Nesbitt testified that in 1977, he conceived of the three-piece, ionomer-over-ionomer construction that was embodied in the Nesbitt patent in 1982. Nesbitt Tr. at 56:11-14. Around the same time, he also conceived of using polyurethane instead of ionomer as the outer cover layer. Nesbitt Tr. at 85:1-9. Mr. Nesbitt testified that in the course of just a few months, he ordered the polyurethane material and made multi-layer, polyurethane-covered golf balls. Nesbitt Tr. at 102-10-24. Mr. Nesbitt testified that he made the polyurethane-covered three-piece balls in virtually the same way that he made he ionomer-over-ionomer balls, and that he did not experience any difficulty in doing so. Nesbitt Tr. at 102:10-103:8. He did not pursue that construction ultimately because it did not exhibit the properties he desired and he perceived adhesion problems with the ball. Nesbitt Tr. at 103:9-17.

262. Mr. Nesbitt's testimony is relevant in my mind in a couple of ways. First, Mr. Nesbitt's testimony clearly shows that he did not fail to make the invention claimed in the patents-in-suit, but quite the opposite—he made the invention of the patents-in-suit in 1978, 17 years before the effective filing date of the patents-in-suit. The fact that Mr. Nesbitt did not like the resilience properties of the ball or the adhesion of the cover layers to each other has no relevance to the claims of the patents-in-suit, since the claims do not claim properties such as

resilience or adhesion. Thus, I find Callaway's arguments regarding the failure of others to invent unpersuasive, and they do not change my opinion that the patents-in-suit were obvious.

263. Second, Mr. Nesbitt's work with polyurethane covers in 1978 confirms my opinion expressed in this report that polyurethane was a known cover material, and it was known to use polyurethane as a substitute for ionomer in the outer layer of a golf ball in 1995 (in fact as early as the 1970s). The fact that Mr. Nesbitt expressed interest in using polyurethane instead of ionomer in the outer cover of a multi-layer golf ball in 1978 shows that a person of ordinary skill in the art would naturally have thought of doing so in 1995.

E. Commercial Acquiescence

264. Callaway argues in its interrogatory responses that because other golf ball companies, such as Nike, TaylorMade, Bridgestone, Wilson, and Srixon, have introduced multilayer polyurethane-covered golf balls since the introduction of the Pro V1, this is evidence that the patents-in-suit are not obvious under a theory of "commercial acquiescence." I disagree.

265. I understand that sometimes an industry can implicitly acknowledge, or acquiesce to, the validity of a patent. This can take the form of licensing the patent (which may indicate that a company acknowledges the validity of the patent) or substantial expense taken to design around a patent (which may also indicate that a company believes the patent to be valid). I am informed that facts such as those can be used as evidence of non-obviousness. I am not aware of any such facts in this case.

266. First, the fact that these companies make multi-layer, urethane-covered balls apparently without licensing the patents-in-suit, is in my mind evidence that they have not acquiesced to the validity of the patents-in-suit. If companies really thought the patents-in-suit were valid, one would expect them to have either licensed the patents or designed around them. Instead, by Callaway's count, at least six major golf ball companies have had multi-layer, polyurethane balls on the market without taking a license to the patents-in-suit (including Acushnet). This indicates to me, if anything, a consensus in the market that the patents-in-suit

are not valid. Even Callaway itself stated its belief that the patents-in-suit are not valid, before it bought the patents from Spalding. Nesbitt Tr. at 250:15-22.

267. Second, to the extent that other companies have introduced multi-layer, polyurethane-covered golf balls, there is no nexus between those balls and the invention claimed by the patents-in-suit. In particular, those balls all have particular dimensions and material choices that are not specified in the claims of the patents-in-suit. The patents-in-suit broadly outline the type of construction that might lead to a ball with low spin off the tee and control around the greens. But golf ball companies must still determine the right combination of core chemistry, core dimensions, inner cover layer chemistry and dimensions, and outer cover layer chemistry and dimensions to get the preferred optimum performance properties.

268. Third, the prior art references that I discuss in this report so clearly match up to the claims of the patents-in-suit, that the fact that other companies have developed multilayer urethane-covered balls could only be used to inject doubt where there is none in my mind about the obviousness of the patents-in-suit.

269. Thus, the fact that other golf ball companies have introduced multi-layer urethane-covered balls does not change my opinion that the claims of the patents-in-suit are obvious.

F. Failure to Design Around

270. Callaway identifies in its interrogatories the fact that Acushnet has not designed around the patents-in-suit as evidence that the patents-in-suit are not obvious. I do not agree.

271. First, I am informed that Acushnet obtained an opinion of counsel that the patents-in-suit are invalid shortly after they issued, for many of the same reasons that I set forth in this report. Thus, the fact that Acushnet allegedly did not design around the patents-in-suit could be evidence merely of the fact that Acushnet did not feel it was necessary to design around the patents-in-suit, rather than the fact that it could not do so.

272. Second, to the extent Callaway argues that the patents cannot be easily designed around, that is merely a function of the breadth of the claims of the patents-in-suit. The claims are so broad as to be clearly anticipated and rendered obvious by the prior art discussed in this report.

IX. CONCLUSION

In addition to the opinions and evidence expressed herein, I reserve the right to rebut any arguments made or evidence presented in response to this report. I also reserve the right to supplement this report based on further investigation or analysis. I also reserve the right to supplement or amend this report based on the Court's claim construction. I also plan to use graphic exhibits and/or demonstratives to help illustrate the facts and opinions I express herein.

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Respectfully,

Dr. Robert J. Statz

Dated: June 1, 2007

EXHIBIT A

ROBERT J. STATZ

Business/Home Address:
115 Beverly Drive
Kennett Square, PA 19348
610-444-3603

Email:
Robertstatz@hotmail.com

Education:

B.S., Chemistry – American University 1963, Washington, D. C.
M.S., Physical and Organic Chemistry, American University 1964
Ph.D., Polymer Chemistry University of Maryland 1968, College Park, MD

Professional Experience:

2002-Present	Retired
1990-2002	Research Fellow – DuPont Experimental Station Research on ionomers for golf balls and other applications
1986-1990	Senior Research Associate – DuPont Experimental Station Polymeric Plasticizers for PVC
1981-1986	Research Associate – DuPont Experimental Station Research on hot melt adhesives, thermoplastic elastomers, asphalt modifiers
1978-1981	Senior Research Chemist – DuPont Experimental Station Research on new soft ionomers for impact modification and a replacement for Balata in golf balls
1976-1978	Research Chemist – DuPont Chestnut Run Research on PVC modifiers and EVA hot melt adhesives
1974-1976	Research Chemist – DuPont Experimental Station Catalyst research to produce monomers for polymers
1971-1974	Research Chemist – DuPont Sabine River Plant (Orange, TX) Research on ionomer resins
1968-1971	Research Chemist – DuPont Experimental Station Research on engineering polymers, polyacetals

U. S. Patents (34 Issued)

U. S. Patents of Commercial Interest:

4,283,317	Wax Free Hot Melt Adhesive Compositions
4,232,174	Catalysts and Dehydrogenation Process
4,271,039	Catalyst and Dehydrogenation Process
4,613,533	Thermoplastic Elastomeric Compositions
4,690,981	Ionomers Having Improved Low-Temperature Properties
4,387,188	Molding Resins Based on Blends of Acid Copolymers and Linear Polyolefins
4,742,107	Noise Reduction and Damping Compositions
5,057,593	Free Radical Copolymerization of Ethylene and CO With Acetone
5,209,983	Adhesives for Laminating Vinyl to Various Substrates
5,277,947	Adhesives for Laminating Vinyl
5,298,571	High Resilient Ionomers for Golf Ball Covers

U. S. Patents of Commercial Interest (continued):

5,155,157	Compositions Useful in the Manufacture of Golf Balls
4,801,649	Ionomers Having Improved Low Temperature Properties and Blends Thereof With Thermoplastic Resins
5,278,236	Polymeric Plasticizers for PVC
5,086,113	Thermoplastic Blends of ABS Containing Ethylene Terpolymers
5,306,750	Polymer and Asphalt Reaction Process and Polymer-Linked Product
5,567,772	Ionomers for Golf Ball Composition
5,562,989	Thermoplastic Primers for Steel
4,985,497	Thermoplastic Blends Containing Ethylene Terpolymers and Preparation
4,766,174	Melt Processible Aluminum Ionomers
5,556,900	Process for Producing A Polyepoxy Polymer-Linked Asphalt
4,926,582	Low Pour Point Crude Oil Compositions
6,100,340	Golf Ball Compositions Containing High Crystalline Ionomers
5,631,324	Golf Ball Covers
5,580,927	Ionomers With Improved High Temperature Properties
RE37,597	Golf Ball Covers
6,197,884	Golf Ball Compositions Containing High Crystalline Acid Copolymers and Their Ionomer Derivatives
6,100,340	Golf Ball Compositions Containing High Crystalline Acid Copolymers and Their Ionomer Derivatives
5,971,869	Golf Ball Composition
5,889,114	Thermoplastic Elastomeric Compositions
5,691,418	Soft Ionomer Compositions and Blends Thereof and Use Thereof As Golf Ball Structural Material

Litigation

Spalding vs Titleist - 1983 - blends of ionomers for golf ball covers.

DuPont vs Spalding – reexamination of Spalding patent of golf ball cover materials Produced from blends – 1993.

Spalding vs DuPont – patent interference on ionomer blends for golf ball covers – 1997.

Spalding vs Wilson – on golf balls having hard, stiff covers and low spin. Deposed by Wilson and Spalding.

Presentations

"Surlyn® Ionomers for Golf Ball Covers," – Proceedings of the Third World Scientific Congress of Golf – 1998 St. Andrews Scotland.

"Surlyn® Ionomers for Golf Covers," Proceedings of the First World Scientific Congress of Golf – 1990 St. Andrews Scotland.

"New Ethylene Copolymers for Asphalt Modification," 1995 Petersen Asphalt Research Conference, Laramie, Wyoming.

"Reactive Ethylene Terpolymers for Asphalt Modification," 1996 Petersen Asphalt Conference.

"Commercial Uses of Ionomers," 1986 ACS Conference, Boston, Massachusetts.

"Photodegradable Ethylene Copolymers," 1990 ACS Conference, Boston, Massachusetts.

"New Plasticizers for PVC," 1990 ACS Conference, Boston, Massachusetts.

"Commercial Uses of Ionomers and Patents," 1988 N.A.T.O. Conference on Ionomers, Villard-De-Lans, France.

"History of the Discovery of Ionomers," 1984 ACS Conference, Miami, Florida.

Consultant for the following:

- Titliest-Footjoy Industries – Fairhaven, MA
- TAMPCO Asphalt Industries – Joplin, MO
- Adell Plastics – Baltimore, MD
- DuPont – Wilmington, DE
- University of California – San Diego, CA
- Penn State, Materials Science Department – State College, PA
- Western Research Institute – Laramie, WY

Awards

DuPont Marketing Excellence Award – 1992 and 1999 – for the discovery of a new Polymeric modifier for asphalt Elvaloy® (see Patent 5,306,750).

I-R 100 Award – 1986 – for the invention of Alcryn®, a thermoplastic elastomer (see Patent 4,163,533).

Significant Other Accomplishments

Was selected to appear in a Corporate television advertisement, which has appeared on television worldwide for the last three years. In this advertisement, I discussed my inventions that led to new ionomers for golf ball covers and new polymers to modify asphalt. A copy of the advertisement is available.

The polymers described in the patent list have resulted in commercial sales of close to 35 million dollars per year for DuPont.

EXHIBIT B

EXHIBIT B TO EXPERT REPORT OF DR. ROBERT J. STATZ
(MATERIALS REVIEWED)

I reviewed all or part of at least the following sources of information in forming the opinions expressed in my expert report. In addition, any documents not listed here but that are referred to in my report were also available to me.

1. U.S. Patent Nos. 6,210,293, 6,503,156, 6,506,130, 6,595,873 (the "patents-in-suit");
2. Prosecution histories for the patents-in-suit, including ancestor applications;
3. U.S. Patent No. 4,431,193 to Nesbitt;
4. U.S. Patent No. 5,314,187 to Proudfit;
5. U.S. Patent No. 4,274,637 to Molitor;
6. U.S. Patent No. 5,334,673 to Wu;
7. U.S. Patent No. 4,674,751 to Molitor;
8. Requests for reexamination, including exhibits and declarations, of the patents-in-suit;
9. Office Actions in the reexaminations of the patents-in-suit;
10. Callaway's response to the office actions in the reexaminations of the patents-in-suit, including exhibits and declarations;
11. Acushnet's comments to Callaway's response to the office actions in the reexaminations of the patents-in-suit, including exhibits and declarations;
12. Declarations of Ed Hebert ("Hebert PTO Decl.") and Jeff Dalton ("Dalton PTO Decl.") submitted in the reexaminations of the patents-in-suit;
13. Declaration of William MacKnight ("MacKnight Decl.") submitted in the reexaminations of the patents-in-suit;
14. Deposition transcripts submitted in the reexaminations of the patents-in-suit, including the Nesbitt deposition transcript ("Nesbitt Tr.");
15. Declarations of Bill Morgan ("Morgan Decl."); Jerry Bellis ("Bellis Decl."); and Davis Love III ("Love Decl.") submitted as exhibits in the reexaminations of the patents-in-suit;
16. Dupont Surlyn Information Sheet;
17. Estane 58133 Product Specification Sheet;
18. Several of my own patents, including U.S. Patent No. 4,844,814;
19. U.S. Patent No. 3,264,272;
20. U.S. Patent No. 3,454,280;
21. U.S. Patent No. 5,691,418;
22. U.S. Patent No. 6,953,820;
23. U.S. Patent No. 3,989,568;
24. U.S. Patent No. 4,123,061;
25. U.S. Patent No. 4,442,282;
26. U.S. Patent No. 6,213,894;
27. U.S. Patent No. 5,803,831;
28. U.S. Patent No. 6,905,648;
29. U.S. Patent No. 5,018,742;
30. U.S. Patent No. 5,795,529;

31. U.S. Patent No. 5,957,786;
32. U.S. Patent No. 6,315,915;
33. U.S. Patent No. 6,635,716;
34. U.S. Patent No. 6,755,912;
35. U.S. Application Serial No. 09/873,594, *Ex parte Sullivan*, 2004-0242, BPAI decision;
36. U.S. Application No. 08/631,613m Binette Declaration;
37. Callaway's non-confidential interrogatory responses;
38. ASTM D-2240 Standard;
39. ASTM D-790 Standard;
40. Elastomers Notebook No. 149;
41. Science and Golf I, Proceedings of the First World Scientific Congress of Golf, 1990;
42. Science and Golf III, Proceedings of the 1998 World Scientific Congress of Golf, 1998;
43. COMPASS readings, July 1991;
44. Several of my papers, including Robert J. Statz, "Commercial Uses of Ionomers," Polymer Preprints, Sept. 1988, and others;
45. Competitive ball report entry for Wilson Ultra Tour Balata 100, AC0072945;
46. Memoranda from Shenshen Wu describing polyurethanes used in the Titleist Professional and Titleist Professional 2P golf balls;
47. Conversations with Acushnet personnel; and
48. Conversations with duPont personnel.

Respectfully,

Dr. Robert J. Statz

Dated: June 1, 2007

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CERTIFICATE OF SERVICE

I, David E. Moore, hereby certify that on June 1, 2007, a true and correct copy of the within document was caused to be served on the attorney of record at the following addresses as indicated:

VIA HAND DELIVERY

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721875 / 30030

EXHIBIT 2

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

CALLAWAY GOLF COMPANY,

Plaintiff,

vs. CA NO. 06-91 (SLR)

ACUSHNET COMPANY,

Defendant.

VIDEOTAPED DEPOSITION OF JAMES R. PROUDFIT

JACKSON, TENNESSEE

THURSDAY, OCTOBER 25, 2007

Reported by:
Joy Goodman
CSR and Notary of TN

JOB No. 74845

The deposition of James R. Proudfit is taken on this, the 25th day of October, 2007, on behalf of the Plaintiff, pursuant to notice and consent of counsel, beginning at approximately 9:30 a.m. at the Doubletree Hotel, 1770 Highway 45 Bypass, Old Hickory Board Room, Jackson, Tennessee.

This deposition is taken pursuant to the terms and provisions of the Tennessee Rules of Civil Procedure.

All forms and formalities, including the signature of the witness, are waived, and objections alone as to matters of competency, irrelevancy and immateriality of the testimony are reserved to be presented and disposed of at or before the hearing.

APPEARANCES

FOR THE PLAINTIFF CALLAWAY:
DAVID S. SHUMAN, ESQ.
FISH & RICHARDSON, P.C.
12390 El Camino Real
San Diego, CA 92130
(858)678-5070

FOR THE DEFENDANT ACUSHNET COMPANY:
BRIAN A. ROSENTHAL, ESQ.
HOWERY, LLP
1299 Pennsylvania Avenue, NW
Washington, DC 20004-2402
(202)383-7108

FOR JAMES R. PROUDFIT:
JEFFERY A. KEY, ESQ.
KEY & ASSOCIATES
150 N. Michigan Avenue
Suite 2700
Chicago, IL 60601
(312)560-2148

COURT REPORTING FIRM:
ALPHA REPORTING CORPORATION
JOY GOODMAN, COURT REPORTER
205 E. Main Street
Jackson, Tennessee 38301
(731) 424-9995

INDEX

EXAMINATION INDEX

EXHIBIT INDEX

THE VIDEOGRAPHER: Today is October 25th, 2007, and the time is approximately 9:33 a.m. Location is at the Doubletree Hotel located on 45 Bypass in Jackson, Tennessee, ZIP code is 38305.

This is the videotaped deposition of Mr. James R. Proudfit in the Case Number 06-91 SLR filed in the U.S. District Court for the District of Delaware. This case is entitled Callaway Golf Company versus Acushnet Company.

My name is Scott Aaron, the videographer today, representing Sarnoff Court Reporters and Legal Technologies in Irving, California. Would counsel please identify themselves for the record at this time.

MR. SHUMAN: David Shuman of Fish & Richardson for plaintiff, Callaway Golf Company.

MR. ROSENTHAL: Brian Rosenthal from Howrey on behalf of the defendant, Acushnet Company.

MR. KEY: Jeffery Key, Key & Associates. I represent the witness, Mr. Proudfit.

THE VIDEOGRAPHER: The witness may now be sworn in by Ms. Joy Goodman of Alpha Reporting Corporation.

JAMES R. PROUDFIT,

having been first duly sworn, was examined and

Page 50

BY MR. ROSENTHAL:
Q. I just wanted to confirm some of the facts that are in your declaration --
A. Okay.
Q. -- on the record.
A. All right.
Q. Mr. Proudfit, what was the involvement that you had in the Ultra Tour Balata specifically?
A. I -- I had complete responsibility to develop the whole ball except for the dimple design.
Q. You're familiar with the composition of the cover layers of that ball?
A. Yes, sir.
Q. What was the composition of the cover layer, the outer cover layer of the Wilson Ultra Tour Balata ball?
A. It was trans polyisoprene and polybutadiene, which made it -- which made it a crosslinkable zinc salt perox- -- peroxide crosslinkable cover.
Q. All right. If you'd turn to your 187 patent, which is Exhibit Number 2.
A. Okay.
Q. And turn to Column 8 of that patent.
A. Okay.
Q. And look at Table 7.

Page 51

A. Okay.
Q. What's the relationship between Table 7, that composition and the composition of the outer cover layer of the Wilson Ultra Tour Balata?
A. Bear with me. I can't see this very good.
Q. It's small.
A. That is the computation -- com- -- that is the formula for the Ultra Tour Balata.
Q. So Table 7 describes the outer cover composition of the outer cover of the Wilson Ultra Tour Balata?
A. Yes, sir.
Q. All right. You're familiar with the composition of the inner cover of the Wilson Ultra Tour Balata?
A. Yes, sir.
Q. What was that composition?
A. That composition was in Table 6, which was Surlyn 8940 at 75 percent and Surlyn 9910 at 25 percent.
Q. Do you have any doubt as to the fact that that was the composition of the inner cover of the Wilson Ultra Tour Balata?
A. No, sir.
Q. All right.

Page 52

MR. ROSENTHAL: Thank you. I have no more questions.
MR. SHUMAN: I have nothing further.
THE VIDEOGRAPHER: This concludes the video --
MR. KEY: Oh, before we go off, because of the proprietary nature of most of that conversation, we're going to have this designated as confidential or highly confidential. I assume that's attorney's eyes only.
MR. ROSENTHAL: There are -- there is an attorney's eyes only provision although I think this is probably highly confidential will be fine. I'll tell you what the difference is. Highly confidential can be seen by certain designated in-house counsel; is that right?
MR. SHUMAN: Yeah. Exactly one designated in-house counsel at Acushnet and one at Callaway Golf.
MR. KEY: Who's designated?
MR. SHUMAN: At Callaway Golf our designee is Mike Rider, lead general counsel.
MR. ROSENTHAL: And ours is Joe Nowman, the general counsel.
MR. KEY: We're going to designate this

Page 53

attorney's eyes only until I get back to you.
MR. SHUMAN: Okay. Very well.
MR. ROSENTHAL: Very good.
MR. KEY: Thank you.
MR. ROSENTHAL: Thank you.
THE VIDEOGRAPHER: This concludes the video deposition of Mr. James Proudfit. End of Tape Number 1. Going off the record at 10:32.
(WHEREUPON, THE DEPOSITION CONCLUDED AT APPROXIMATELY 10:32 A.M.)
(AND FURTHER DEPONENT SAITH NOT)
(SIGNATURE WAIVED)

CERTIFICATE

STATE OF TENNESSEE:
COUNTY OF SHELBY:

I, Joy Goodman, Court Reporter and Notary Public, Shelby County, Tennessee, CERTIFY:

The foregoing proceedings were taken before me at the time and place stated in the foregoing styled cause with the appearances as noted.

Being a Court Reporter, I then reported the proceeding in Stenotype, and the foregoing pages contain a true and correct transcript of my said Stenotype notes then and there taken.

I am not in the employ of and am not related to any of the parties or their counsel, and I have no interest in the matter involved.

I further certify that in order for this document to be considered a true and correct copy, it must bear my signature seal, and that any reproduction in whole or in part of this document is not authorized and not to be considered authentic.

Witness my signature, this the day of , 2007.

_____
Joy Goodman, Court Reporter
Notary Public at Large
For the State of Tennessee

My Commission Expires:
July 20, 2008